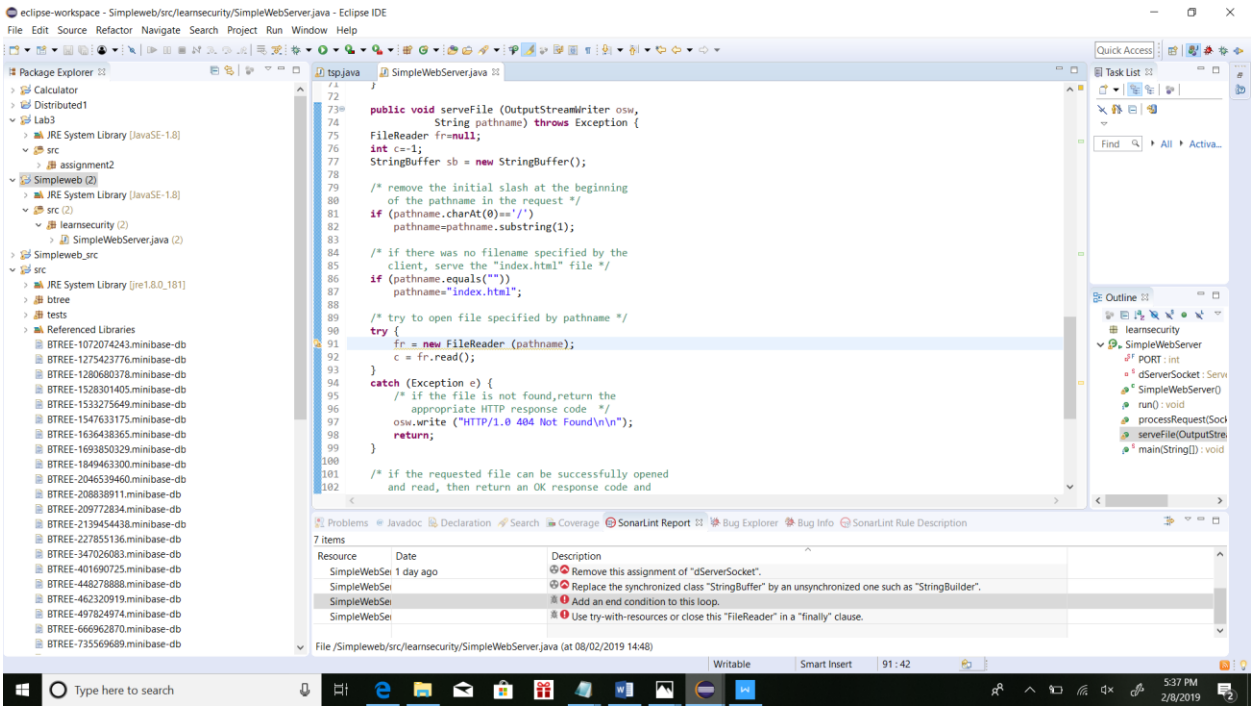
Part 1:

Manual Analysis:



As we can see on line 91, fr is never closed. FileReader should be closed.

1)SpotBugs(Version:3.1):

Category of Tool: **Bug Finding**

Does the tool analyze source or binary as input: **Binary**

Test 1(Default):

Rank: 15

Bugs: 2(1 high confidence, 1 medium confidence)

Minimum Confidence to report: Medium

Reported Bug Categories(Visible): Bad Practice, Correctness, Performance, Dodgy Code, Multithreaded Correctness

Test 2:(Most aggressive mode)

Rank: 20

Bugs: 8(4 high confidence, 3 normal confidence, 1 low confidence)

Minimum Confidence to report: Low

Reported Bug Categories(visible): Bad practice, Malicious code vulnerability, Correctness, Performance, Security, Dodgy Code, Experimental, Multithreaded correctness, Internationalization

Test 3:

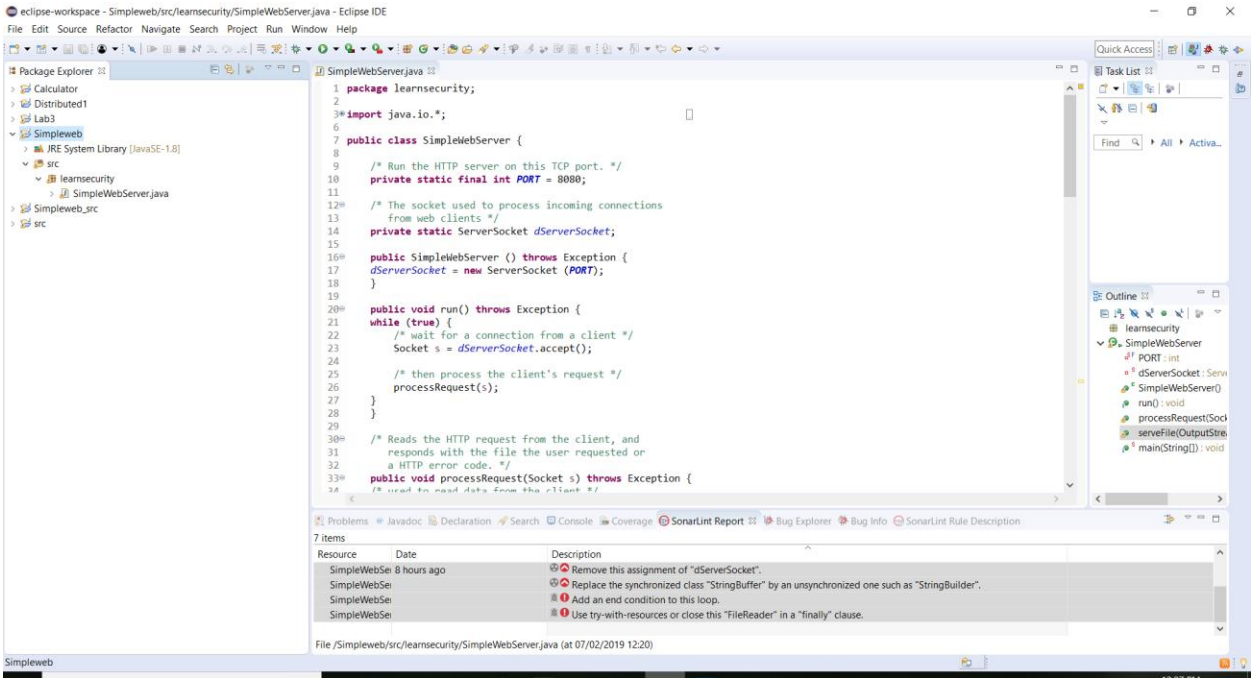
Rank: 1

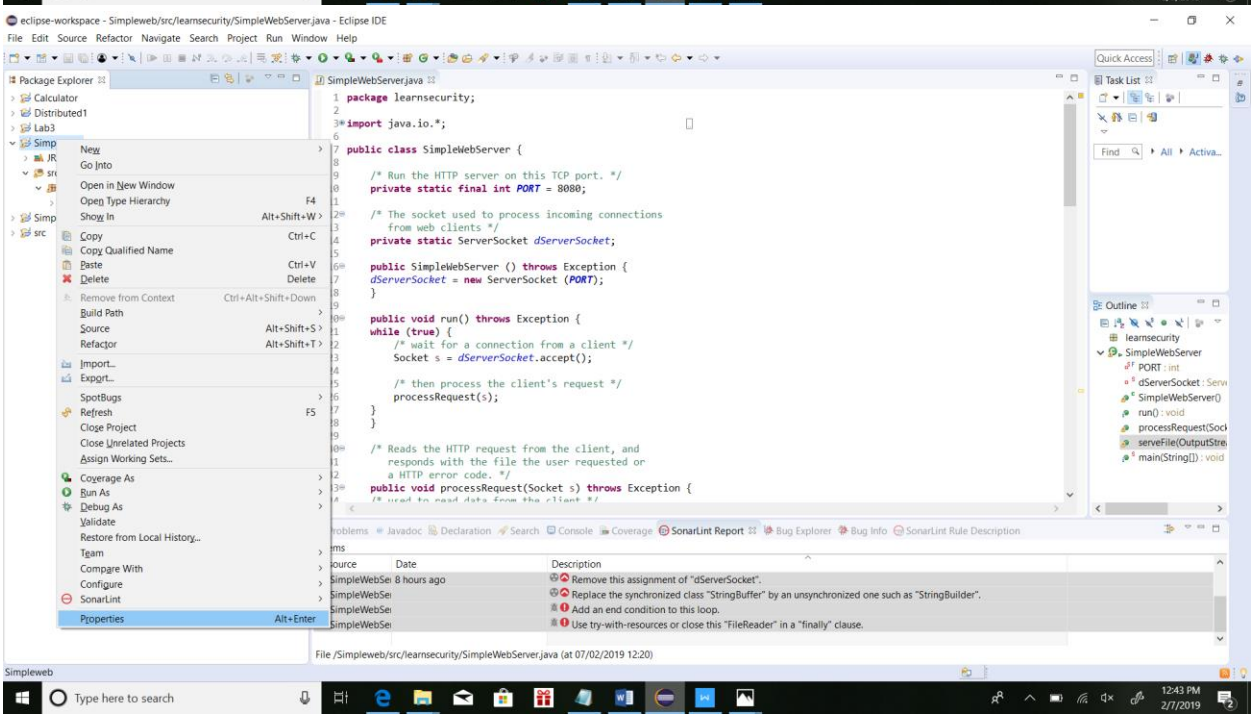
Bugs: 0

Minimum Confidence to report: High

Reported Bug Categories(visible): Bad Practice, Correctness, Performance, Dodgy Code, Multithreaded Correctness

Screenshots for Test 1:


eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb
JRE System Library [JavaSE-1.8]
src
learnsecurity
SimpleWebServer.java
Simpleweb_src
src
SimpleWebServer.java
package learnsecurity;
import java.io.*;
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
Task List
Outline
learnsecurity
SimpleWebServer
PORT : int
dServerSocket : Serv
SimpleWebServer()
run() : void
processRequest(Sock
serveFile(OutputStre
main(String[]) : void
Problems Javadoc Declaration Search Console Coverage SonarLint Report Bug Explorer Bug Info SonarLint Rule Description
7 items
Resource Date Description
SimpleWebSer 8 hours ago Remove this assignment of "dServerSocket".
SimpleWebSer Replace the synchronized class "StringBuffer" by an unsynchronized one such as "StringBuilder".
SimpleWebSer Add an end condition to this loop.
SimpleWebSer Use try-with-resources or close this "FileReader" in a "finally" clause.
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 12:20)
Simpleweb
Type here to search
12:37 PM
2/7/2019


eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simp
JR
src
Simp
src
New
Go Into
Open in New Window
Open Type Hierarchy F4
Show In Alt+Shift+W
Copy Ctrl+C
Copy Qualified Name
Paste Ctrl+V
Delete Delete
Remove from Context Ctrl+Alt+Shift+Down
Build Path
Source Alt+Shift+S
Refactor Alt+Shift+T
Import...
Export...
SpotBugs
Refresh F5
Close Project
Close Unrelated Projects
Assign Working Sets...
Coverage As
Run As
Debug As
Validate
Restore from Local History...
Team
Compare With
Configure
SonarLint
Properties Alt+Enter
SimpleWebServer.java
package learnsecurity;
import java.io.*;
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
Task List
Outline
learnsecurity
SimpleWebServer
PORT : int
dServerSocket : Serv
SimpleWebServer()
run() : void
processRequest(Sock
serveFile(OutputStre
main(String[]) : void
Problems Javadoc Declaration Search Console Coverage SonarLint Report Bug Explorer Bug Info SonarLint Rule Description
Resource Date Description
SimpleWebSer 8 hours ago Remove this assignment of "dServerSocket".
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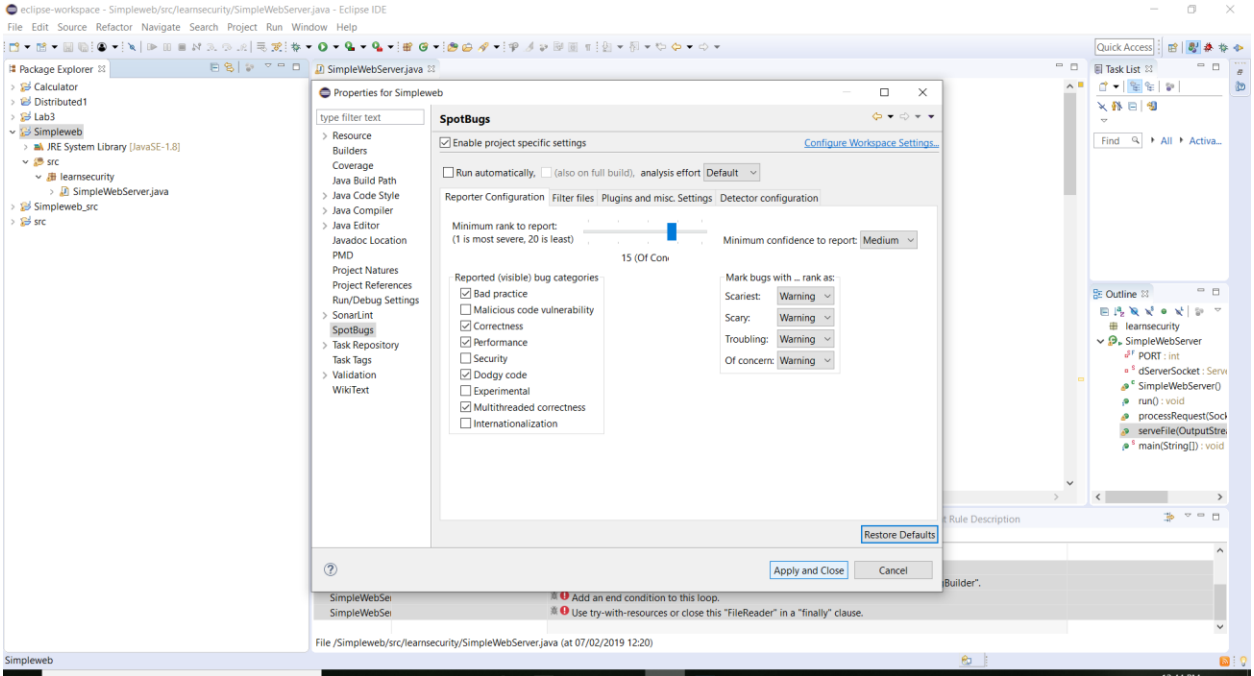
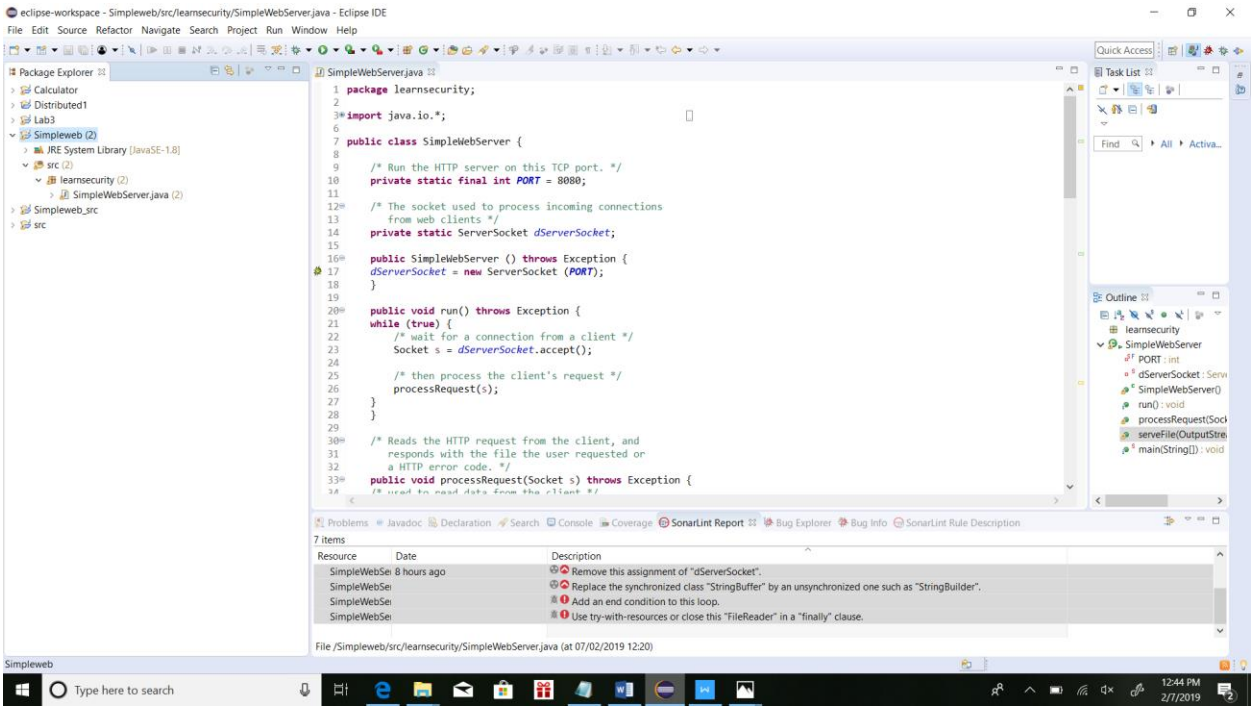
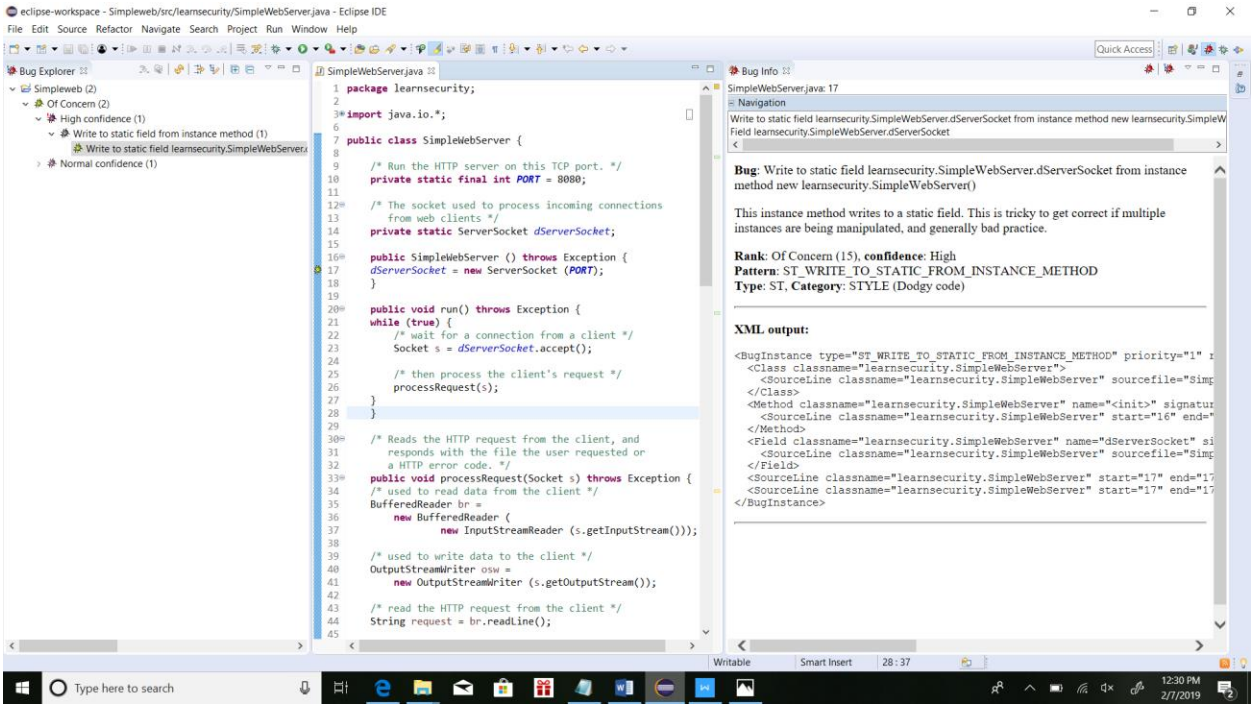
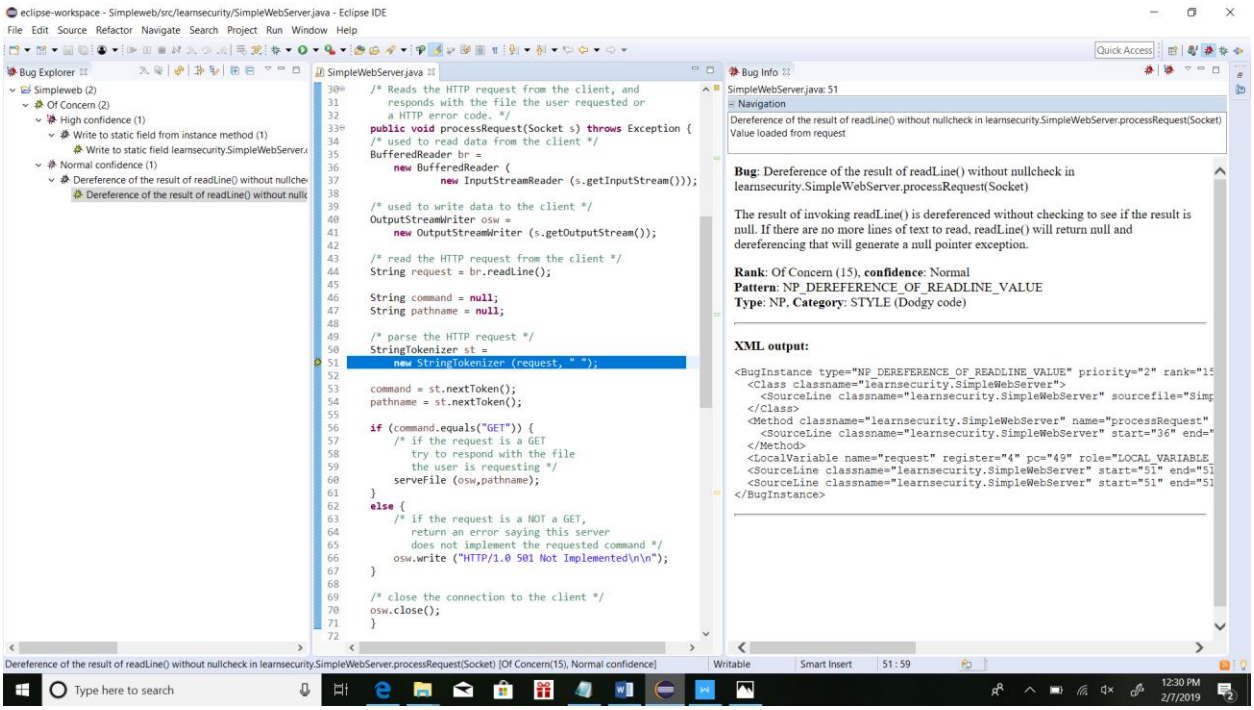
SimpleWebSer Use try-with-resources or close this "FileReader" in a "finally" clause.
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 12:20)
Simpleweb
Type here to search
12:43 PM
2/7/2019

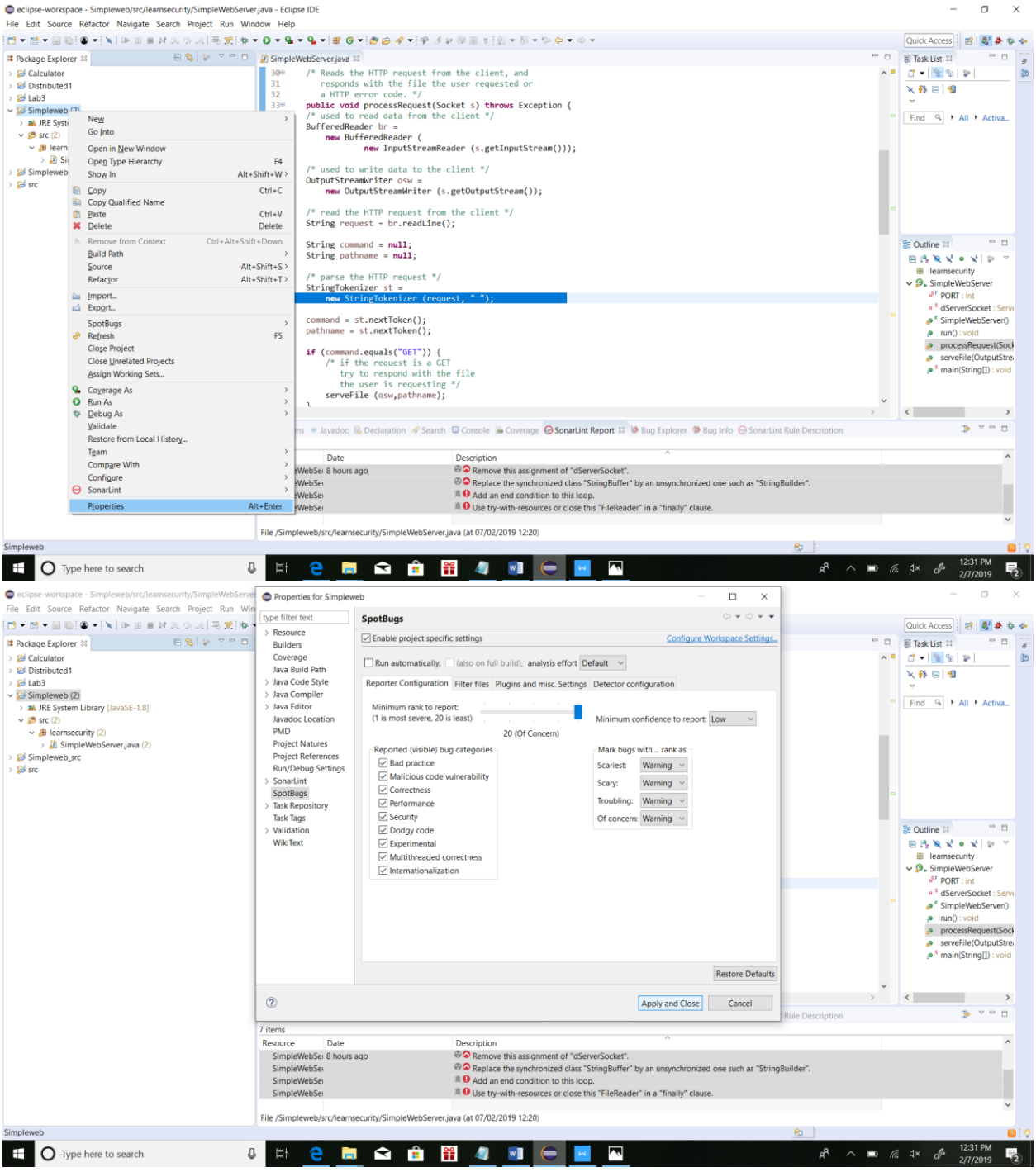

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb
JRE System Library [JavaSE-1.8]
src
learnsecurity
SimpleWebServer.java
Simpleweb_src
src
SimpleWebServer.java
Properties for Simpleweb
type filter text
Resource
Builders
Coverage
Java Build Path
Java Code Style
Java Compiler
Java Editor
Javadoc Location
PMD
Project Natures
Project References
Run/Debug Settings
SonarLint
SpotBugs
Task Repository
Task Tags
Validation
WikiText
SpotBugs
Enable project specific settings
Configure Workspace Settings...
Run automatically, (also on full build), analysis effort Default
Reporter Configuration
Filter files
Plugins and misc. Settings
Detector configuration
Minimum rank to report:
(1 is most severe, 20 is least)
15 (Of Con
Minimum confidence to report: Medium
Reported (visible) bug categories
Bad practice
Malicious code vulnerability
Correctness
Performance
Security
Dodgy code
Experimental
Multithreaded correctness
Internationalization
Mark bugs with ... rank as:
Scariest: Warning
Scary: Warning
Troubling: Warning
Of concern: Warning
Restore Defaults
Apply and Close
Cancel
Add an end condition to this loop.
Use try-with-resources or close this "FileReader" in a "finally" clause.
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 12:20)
Simpleweb
Type here to search
12:44 PM
2/7/2019


eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb (2)
JRE System Library [JavaSE-1.8]
src (2)
learnsecurity (2)
SimpleWebServer.java (2)
Simpleweb_src
src
SimpleWebServer.java
package learnsecurity;
import java.io.*;
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
Problems Javadoc Declaration Search Console Coverage SonarLint Report Bug Explorer Bug Info SonarLint Rule Description
7 items
Resource Date Description
SimpleWebSer 8 hours ago Remove this assignment of "dServerSocket".
SimpleWebSer Replace the synchronized class "StringBuffer" by an unsynchronized one such as "StringBuilder".
SimpleWebSer Add an end condition to this loop.
SimpleWebSer Use try-with-resources or close this "FileReader" in a "finally" clause.
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 12:20)
Simpleweb
Type here to search
12:44 PM
2/7/2019

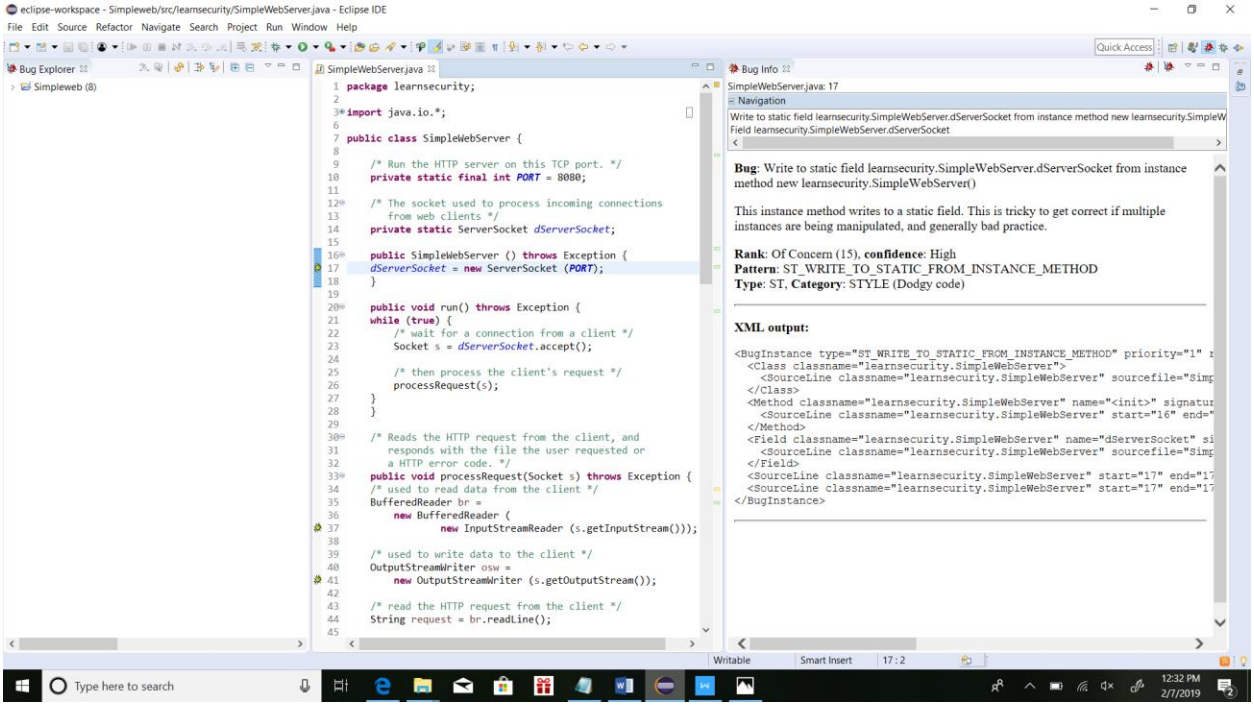


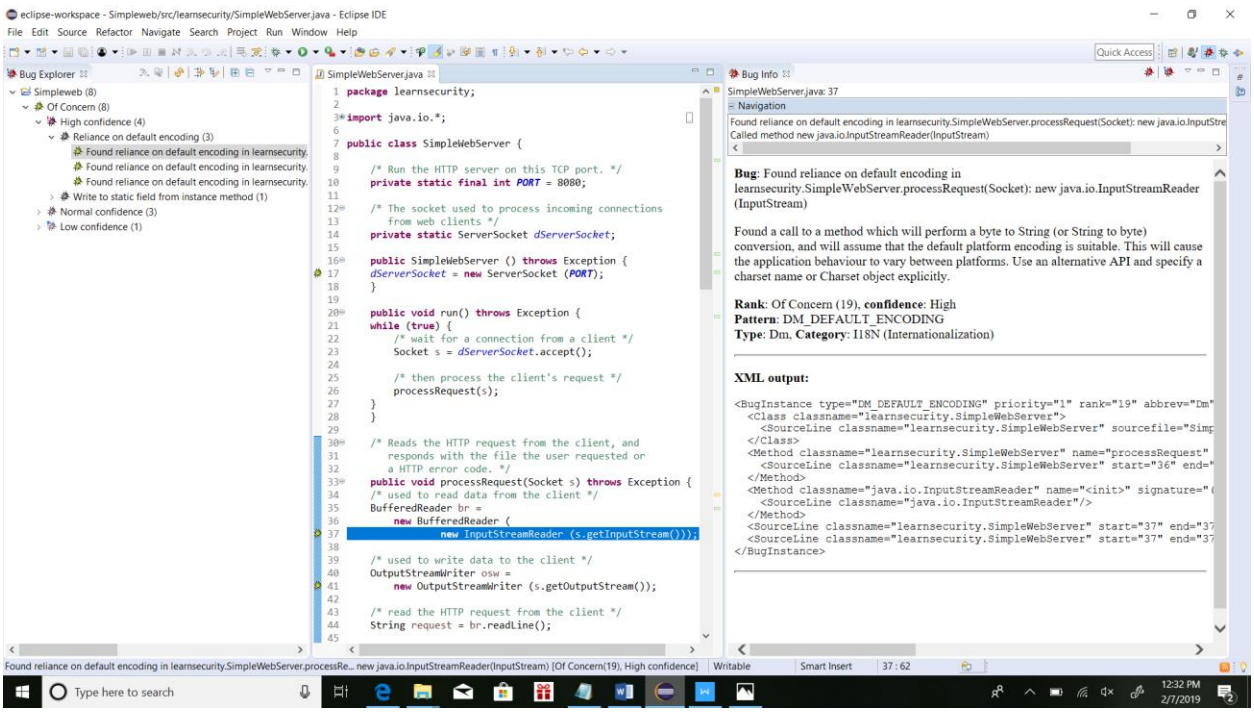


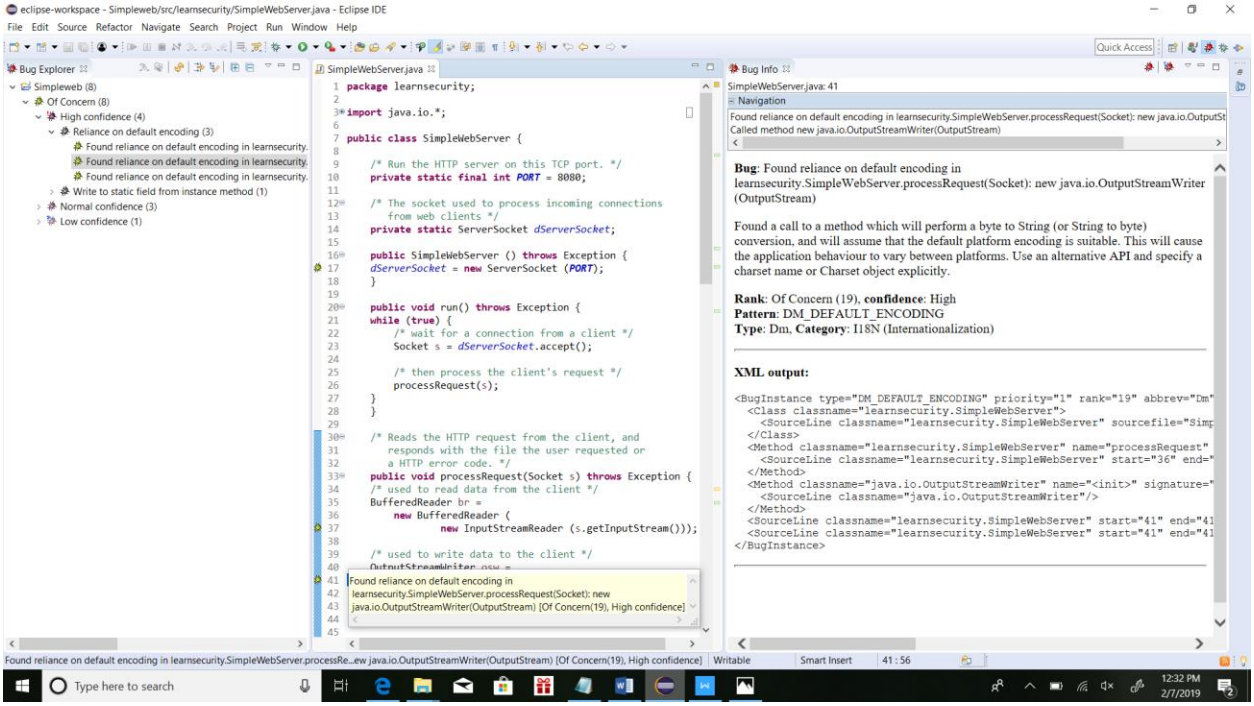
Screenshots for Test 2:

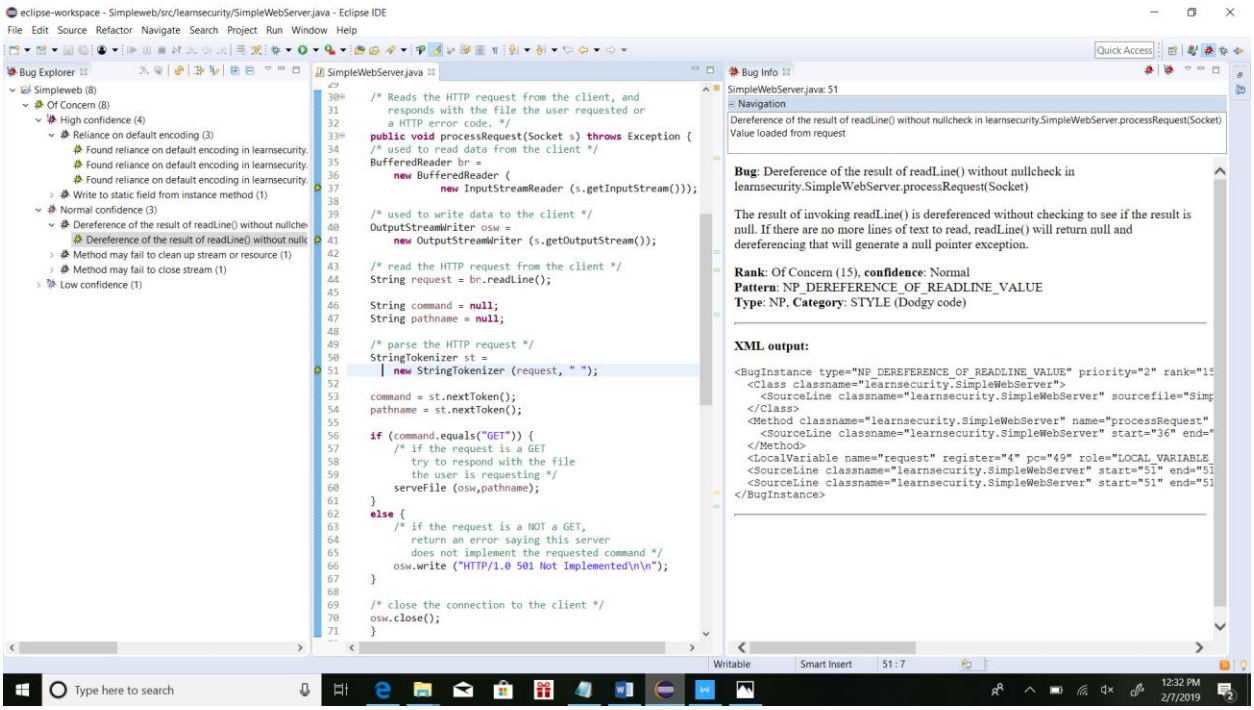

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb
JRE System
src (2)
learn
Simpleweb
src
SimpleWebServer.java
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
/* used to read data from the client */
BufferedReader br =
new BufferedReader (
new InputStreamReader (s.getInputStream()));
/* used to write data to the client */
OutputStreamWriter osw =
new OutputStreamWriter (s.getOutputStream());
/* read the HTTP request from the client */
String request = br.readLine();
String command = null;
String pathname = null;
/* parse the HTTP request */
StringTokenizer st =
new StringTokenizer (request, " ");
command = st.nextToken();
pathname = st.nextToken();
if (command.equals("GET")) {
/* if the request is a GET
try to respond with the file
the user is requesting */
serveFile (osw,pathname);
New
Go Into
Open in New Window
Open Type Hierarchy F4
Show In Alt+Shift+W
Copy Ctrl+C
Copy Qualified Name
Paste Ctrl+V
Delete Delete
Remove from Context Ctrl+Alt+Shift+Down
Build Path
Source Alt+Shift+S
Refactor Alt+Shift+T
Import...
Export...
SpotBugs
Refresh F5
Close Project
Close Unrelated Projects
Assign Working Sets...
Coverage As
Run As
Debug As
Validate
Restore from Local History...
Team
Compare With
Configure
SonarLint
Properties Alt+Enter
Outline
learnsecurity
SimpleWebServer
PORT : int
dServerSocket : Serv
SimpleWebServer()
run() : void
processRequest(Sock
serveFile(OutputStrea
main(String[]) : void
Javadoc Declaration Search Console Coverage SonarLint Report Bug Explorer Bug Info SonarLint Rule Description
Date
Description
8 hours ago
Remove this assignment of "dServerSocket".
Replace the synchronized class "StringBuffer" by an unsynchronized one such as "StringBuilder".
Add an end condition to this loop.
Use try-with-resources or close this "FileReader" in a "finally" clause.
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 12:20)
Simpleweb
Type here to search
12:31 PM
2/7/2019

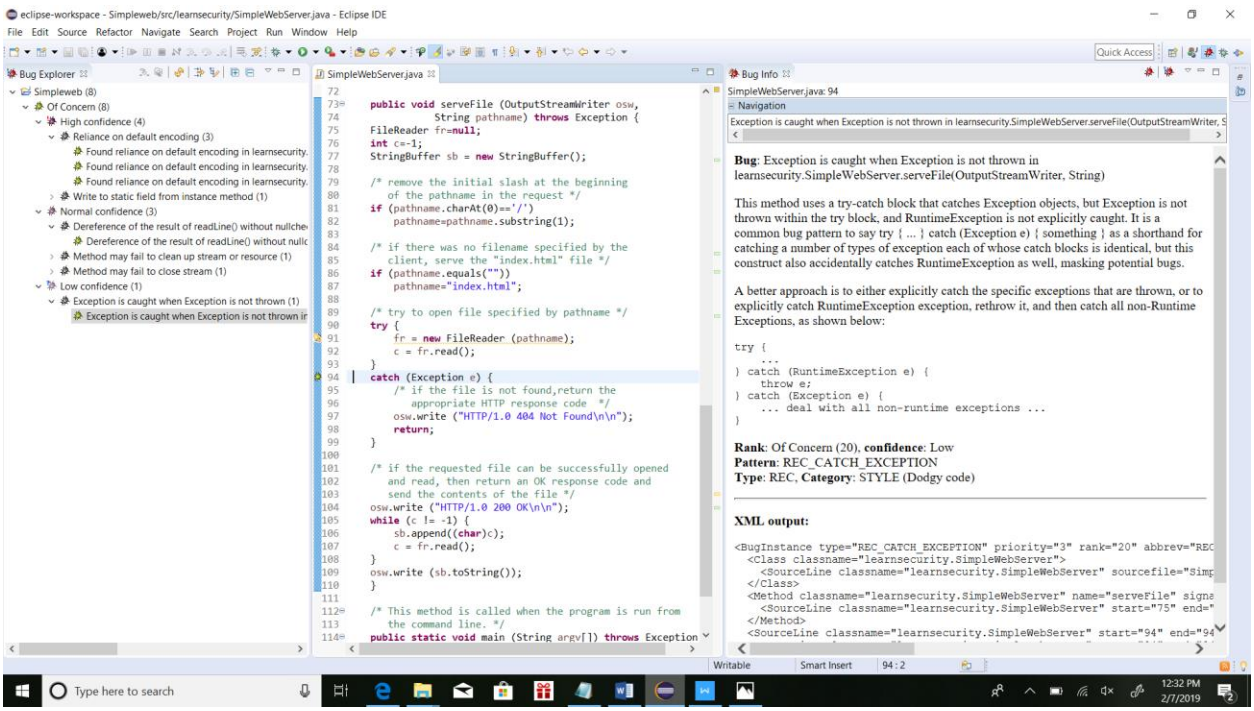
Properties for Simpleweb
type filter text
Resource
Builders
Coverage
Java Build Path
Java Code Style
Java Compiler
Java Editor
Javadoc Location
PMD
Project Natures
Project References
Run/Debug Settings
SonarLint
SpotBugs
Task Repository
Task Tags
Validation
WikiText
SpotBugs
Enable project specific settings
Configure Workspace Settings...
Run automatically, (also on full build), analysis effort Default
Reporter Configuration
Filter files
Plugins and misc. Settings
Detector configuration
Minimum rank to report:
(1 is most severe, 20 is least)
20 (Of Concern)
Minimum confidence to report: Low
Reported (visible) bug categories
Bad practice
Malicious code vulnerability
Correctness
Performance
Security
Dodgy code
Experimental
Multithreaded correctness
Internationalization
Mark bugs with ... rank as:
Scariest: Warning
Scary: Warning
Troubling: Warning
Of concern: Warning
Restore Defaults
Apply and Close
Cancel
7 items
Resource
Date
Description
SimpleWebSer
8 hours ago
Remove this assignment of "dServerSocket".
Replace the synchronized class "StringBuffer" by an unsynchronized one such as "StringBuilder".
Add an end condition to this loop.
Use try-with-resources or close this "FileReader" in a "finally" clause.
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 12:20)
Simpleweb
Type here to search
12:31 PM
2/7/2019


eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Bug Explorer
Simpleweb (8)
SimpleWebServer.java
1 package learnsecurity;
3 import java.io.*;
7 public class SimpleWebServer {
9 /* Run the HTTP server on this TCP port. */
10 private static final int PORT = 8080;
12 /* The socket used to process incoming connections
13 from web clients */
14 private static ServerSocket dServerSocket;
16 public SimpleWebServer () throws Exception {
17 dServerSocket = new ServerSocket (PORT);
18 }
20 public void run() throws Exception {
21 while (true) {
22 /* wait for a connection from a client */
23 Socket s = dServerSocket.accept();
25 /* then process the client's request */
26 processRequest(s);
27 }
28 }
30 /* Reads the HTTP request from the client, and
31 responds with the file the user requested or
32 a HTTP error code. */
33 public void processRequest(Socket s) throws Exception {
34 /* used to read data from the client */
35 BufferedReader br =
36 new BufferedReader (
37 new InputStreamReader (s.getInputStream()));
39 /* used to write data to the client */
40 OutputStreamWriter osw =
41 new OutputStreamWriter (s.getOutputStream());
43 /* read the HTTP request from the client */
44 String request = br.readLine();
Bug Info
SimpleWebServer.java: 17
Navigation
Write to static field learnsecurity.SimpleWebServer.dServerSocket from instance method new learnsecurity.SimpleW
Field learnsecurity.SimpleWebServer.dServerSocket
Bug: Write to static field learnsecurity.SimpleWebServer.dServerSocket from instance method new learnsecurity.SimpleWebServer()
This instance method writes to a static field. This is tricky to get correct if multiple instances are being manipulated, and generally bad practice.
Rank: Of Concern (15), confidence: High
Pattern: ST_WRITE_TO_STATIC_FROM_INSTANCE_METHOD
Type: ST, Category: STYLE (Dodgy code)
XML output:
<BugInstance type="ST_WRITE_TO_STATIC_FROM_INSTANCE_METHOD" priority="1"
<Class classname="learnsecurity.SimpleWebServer">
<SourceLine classname="learnsecurity.SimpleWebServer" sourcefile="Simp
</Class>
<Method classname="learnsecurity.SimpleWebServer" name="<init>" signatur
<SourceLine classname="learnsecurity.SimpleWebServer" start="16" end="
</Method>
<Field classname="learnsecurity.SimpleWebServer" name="dServerSocket" si
<SourceLine classname="learnsecurity.SimpleWebServer" sourcefile="Simp
</Field>
<SourceLine classname="learnsecurity.SimpleWebServer" start="17" end="17
<SourceLine classname="learnsecurity.SimpleWebServer" start="17" end="17
</BugInstance>
Writable
Smart Insert
17 : 2
Type here to search
12:32 PM
2/7/2019

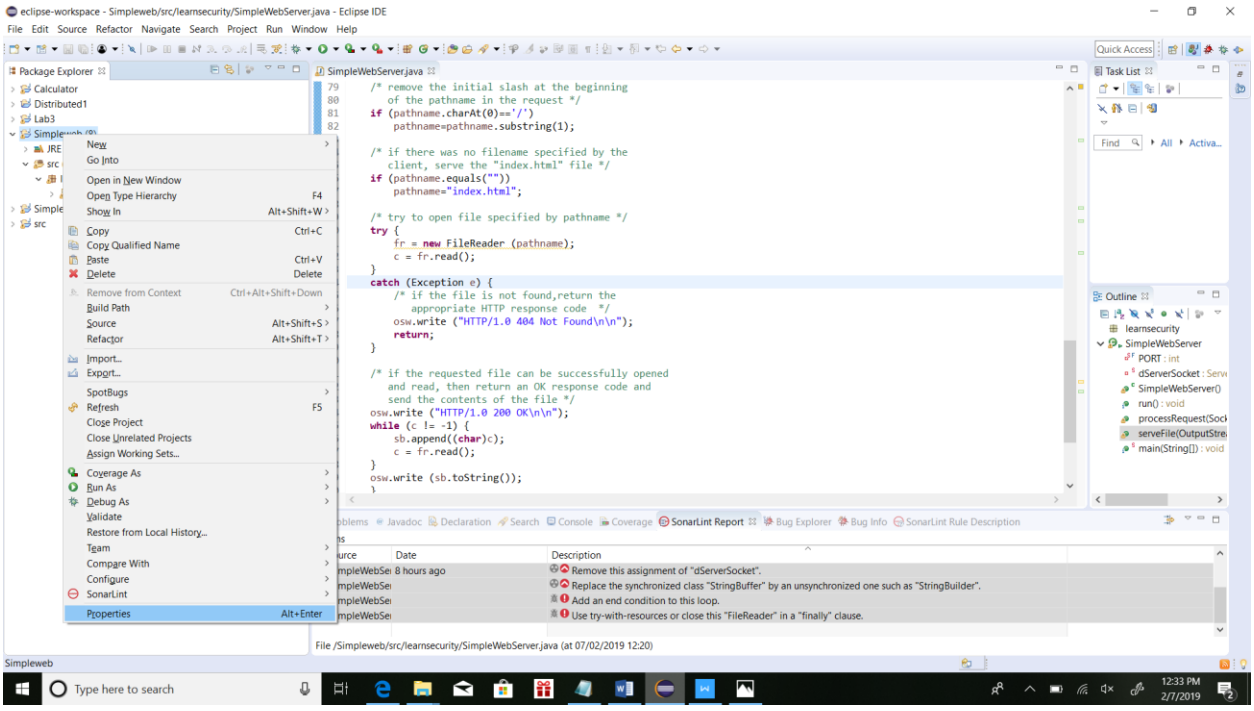

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Bug Explorer
Simpleweb (8)
Of Concern (8)
High confidence (4)
Reliance on default encoding (3)
Found reliance on default encoding in learnsecurity.
Found reliance on default encoding in learnsecurity.
Found reliance on default encoding in learnsecurity.
Write to static field from instance method (1)
Normal confidence (3)
Low confidence (1)
SimpleWebServer.java
1 package learnsecurity;
3 import java.io.*;
7 public class SimpleWebServer {
9 /* Run the HTTP server on this TCP port. */
10 private static final int PORT = 8080;
12 /* The socket used to process incoming connections
13 from web clients */
14 private static ServerSocket dServerSocket;
16 public SimpleWebServer () throws Exception {
17 dServerSocket = new ServerSocket (PORT);
18 }
20 public void run() throws Exception {
21 while (true) {
22 /* wait for a connection from a client */
23 Socket s = dServerSocket.accept();
25 /* then process the client's request */
26 processRequest(s);
27 }
28 }
30 /* Reads the HTTP request from the client, and
31 responds with the file the user requested or
32 a HTTP error code. */
33 public void processRequest(Socket s) throws Exception {
34 /* used to read data from the client */
35 BufferedReader br =
36 new BufferedReader (
37 new InputStreamReader (s.getInputStream()));
39 /* used to write data to the client */
40 OutputStreamWriter osw =
41 new OutputStreamWriter (s.getOutputStream());
43 /* read the HTTP request from the client */
44 String request = br.readLine();
Bug Info
SimpleWebServer.java: 37
Navigation
Found reliance on default encoding in learnsecurity.SimpleWebServer.processRequest(Socket): new java.io.InputStre
Called method new java.io.InputStreamReader(InputStream)
Bug: Found reliance on default encoding in learnsecurity.SimpleWebServer.processRequest(Socket): new java.io.InputStreamReader (InputStream)
Found a call to a method which will perform a byte to String (or String to byte) conversion, and will assume that the default platform encoding is suitable. This will cause the application behaviour to vary between platforms. Use an alternative API and specify a charset name or Charset object explicitly.
Rank: Of Concern (19), confidence: High
Pattern: DM_DEFAULT_ENCODING
Type: Dm, Category: I18N (Internationalization)
XML output:
<BugInstance type="DM_DEFAULT_ENCODING" priority="1" rank="19" abbrev="Dm"
<Class classname="learnsecurity.SimpleWebServer">
<SourceLine classname="learnsecurity.SimpleWebServer" sourcefile="Simp
</Class>
<Method classname="learnsecurity.SimpleWebServer" name="processRequest"
<SourceLine classname="learnsecurity.SimpleWebServer" start="36" end="
</Method>
<Method classname="java.io.InputStreamReader" name="<init>" signature="(
<SourceLine classname="java.io.InputStreamReader"/>
</Method>
<SourceLine classname="learnsecurity.SimpleWebServer" start="37" end="37
<SourceLine classname="learnsecurity.SimpleWebServer" start="37" end="37
</BugInstance>
Found reliance on default encoding in learnsecurity.SimpleWebServer.processRe... new java.io.InputStreamReader(InputStream) [Of Concern(19), High confidence]
Writable
Smart Insert
37 : 62
Type here to search
12:32 PM
2/7/2019

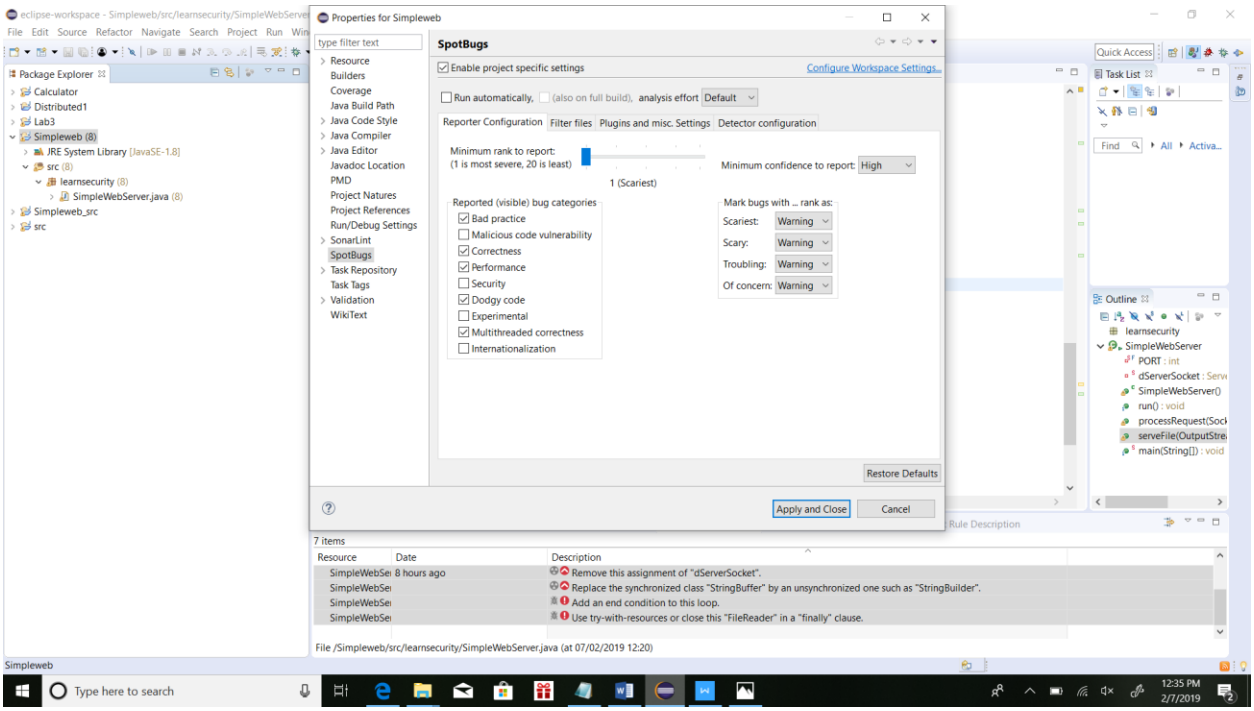

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Bug Explorer
Simpleweb (8)
Of Concern (8)
High confidence (4)
Reliance on default encoding (3)
Found reliance on default encoding in learnsecurity.
Found reliance on default encoding in learnsecurity.
Found reliance on default encoding in learnsecurity.
Write to static field from instance method (1)
Normal confidence (3)
Low confidence (1)
SimpleWebServer.java
package learnsecurity;
import java.io.*;
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
/* used to read data from the client */
BufferedReader br =
new BufferedReader (
new InputStreamReader (s.getInputStream()));
/* used to write data to the client */
Found reliance on default encoding in
learnsecurity.SimpleWebServer.processRequest(Socket): new
java.io.OutputStreamWriter(OutputStream) [Of Concern(19), High confidence]
Bug Info
SimpleWebServer.java: 41
Navigation
Found reliance on default encoding in learnsecurity.SimpleWebServer.processRequest(Socket): new java.io.OutputSt
Called method new java.io.OutputStreamWriter(OutputStream)
Bug: Found reliance on default encoding in learnsecurity.SimpleWebServer.processRequest(Socket): new java.io.OutputStreamWriter (OutputStream)
Found a call to a method which will perform a byte to String (or String to byte) conversion, and will assume that the default platform encoding is suitable. This will cause the application behaviour to vary between platforms. Use an alternative API and specify a charset name or Charset object explicitly.
Rank: Of Concern (19), confidence: High
Pattern: DM_DEFAULT_ENCODING
Type: Dm, Category: I18N (Internationalization)
XML output:
<BugInstance type="DM_DEFAULT_ENCODING" priority="1" rank="19" abbrev="Dm"
<Class classname="learnsecurity.SimpleWebServer">
<SourceLine classname="learnsecurity.SimpleWebServer" sourcefile="Simp
</Class>
<Method classname="learnsecurity.SimpleWebServer" name="processRequest"
<SourceLine classname="learnsecurity.SimpleWebServer" start="36" end="
</Method>
<Method classname="java.io.OutputStreamWriter" name="<init>" signature="
<SourceLine classname="java.io.OutputStreamWriter"/>
</Method>
<SourceLine classname="learnsecurity.SimpleWebServer" start="41" end="41
<SourceLine classname="learnsecurity.SimpleWebServer" start="41" end="41
</BugInstance>
Found reliance on default encoding in learnsecurity.SimpleWebServer.processRe...ew java.io.OutputStreamWriter(OutputStream) [Of Concern(19), High confidence]
Writable
Smart Insert
41 : 56
Type here to search
12:32 PM
2/7/2019

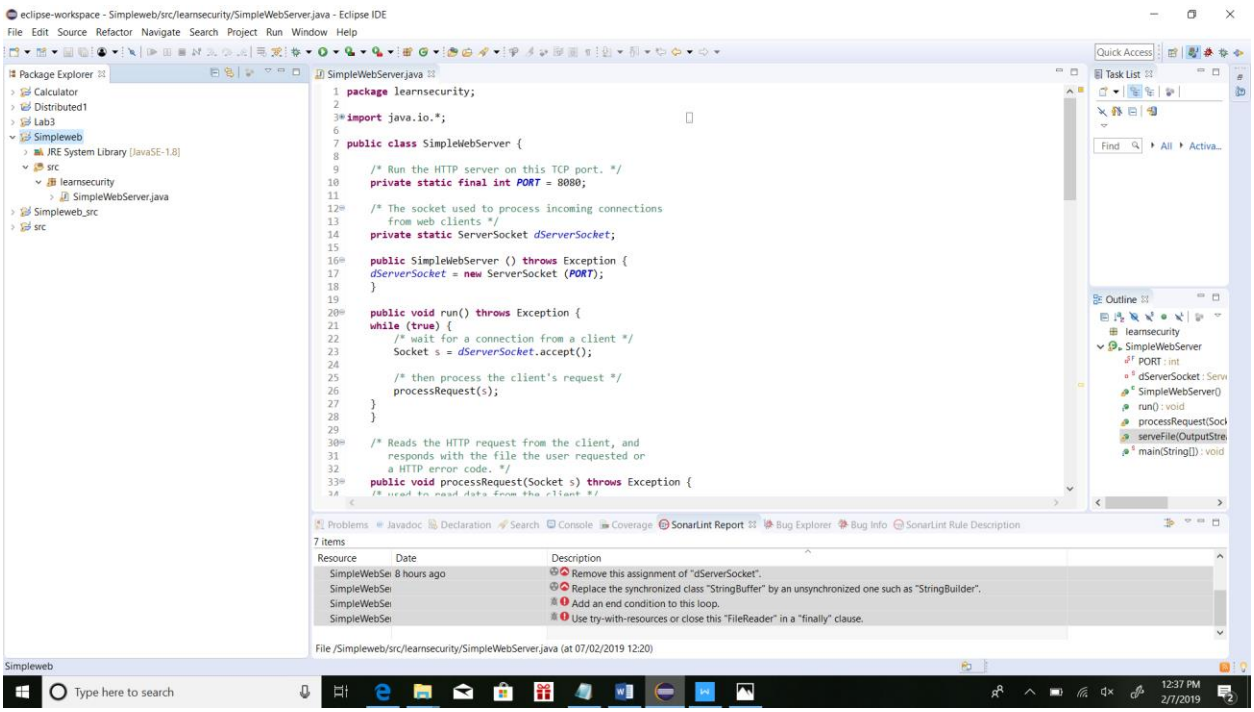

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Bug Explorer
Simpleweb (8)
Of Concern (8)
High confidence (4)
Reliance on default encoding (3)
Found reliance on default encoding in learnsecurity.
Found reliance on default encoding in learnsecurity.
Found reliance on default encoding in learnsecurity.
Write to static field from instance method (1)
Normal confidence (3)
Dereference of the result of readLine() without nullche
Dereference of the result of readLine() without nullc
Method may fail to clean up stream or resource (1)
Method may fail to close stream (1)
Low confidence (1)
SimpleWebServer.java
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
/* used to read data from the client */
BufferedReader br =
new BufferedReader (
new InputStreamReader (s.getInputStream()));
/* used to write data to the client */
OutputStreamWriter osw =
new OutputStreamWriter (s.getOutputStream());
/* read the HTTP request from the client */
String request = br.readLine();
String command = null;
String pathname = null;
/* parse the HTTP request */
StringTokenizer st =
new StringTokenizer (request, " ");
command = st.nextToken();
pathname = st.nextToken();
if (command.equals("GET")) {
/* if the request is a GET
try to respond with the file
the user is requesting */
serveFile (osw,pathname);
}
else {
/* if the request is a NOT a GET,
return an error saying this server
does not implement the requested command */
osw.write ("HTTP/1.0 501 Not Implemented\n\n");
}
/* close the connection to the client */
osw.close();
}
Bug Info
SimpleWebServer.java: 51
Navigation
Dereference of the result of readLine() without nullcheck in learnsecurity.SimpleWebServer.processRequest(Socket)
Value loaded from request
Bug: Dereference of the result of readLine() without nullcheck in learnsecurity.SimpleWebServer.processRequest(Socket)
The result of invoking readLine() is dereferenced without checking to see if the result is null. If there are no more lines of text to read, readLine() will return null and dereferencing that will generate a null pointer exception.
Rank: Of Concern (15), confidence: Normal
Pattern: NP_DEREFERENCE_OF_READLINE_VALUE
Type: NP, Category: STYLE (Dodgy code)
XML output:
<BugInstance type="NP_DEREFERENCE_OF_READLINE_VALUE" priority="2" rank="15
<Class classname="learnsecurity.SimpleWebServer">
<SourceLine classname="learnsecurity.SimpleWebServer" sourcefile="Simp
</Class>
<Method classname="learnsecurity.SimpleWebServer" name="processRequest"
<SourceLine classname="learnsecurity.SimpleWebServer" start="36" end="
</Method>
<LocalVariable name="request" register="4" pc="49" role="LOCAL_VARIABLE_
<SourceLine classname="learnsecurity.SimpleWebServer" start="51" end="51
<SourceLine classname="learnsecurity.SimpleWebServer" start="51" end="51
</BugInstance>
Writable
Smart Insert
51 : 7
Type here to search
12:32 PM
2/7/2019



Screenshots for Test 3:







SonarLint(Version:4.1):

Category of Tool: **Bug Finding**

Does the tool analyze source or binary as input: **Source Code**

Test 1:

Severity of SonarLint markers: Info

Code Smell:

1)Number of major Code Smells: 4

2) Number of minor Code Smells: 1

Bugs(Blocker Issue):2

Test 2:

Severity of SonarLint markers: Warnings

Code Smell:

1)Number of major Code Smells: 4

2) Number of minor Code Smells: 1

Bugs(Blocker Issue):2

Test 3:

Severity of Sonarlint markers: Errors

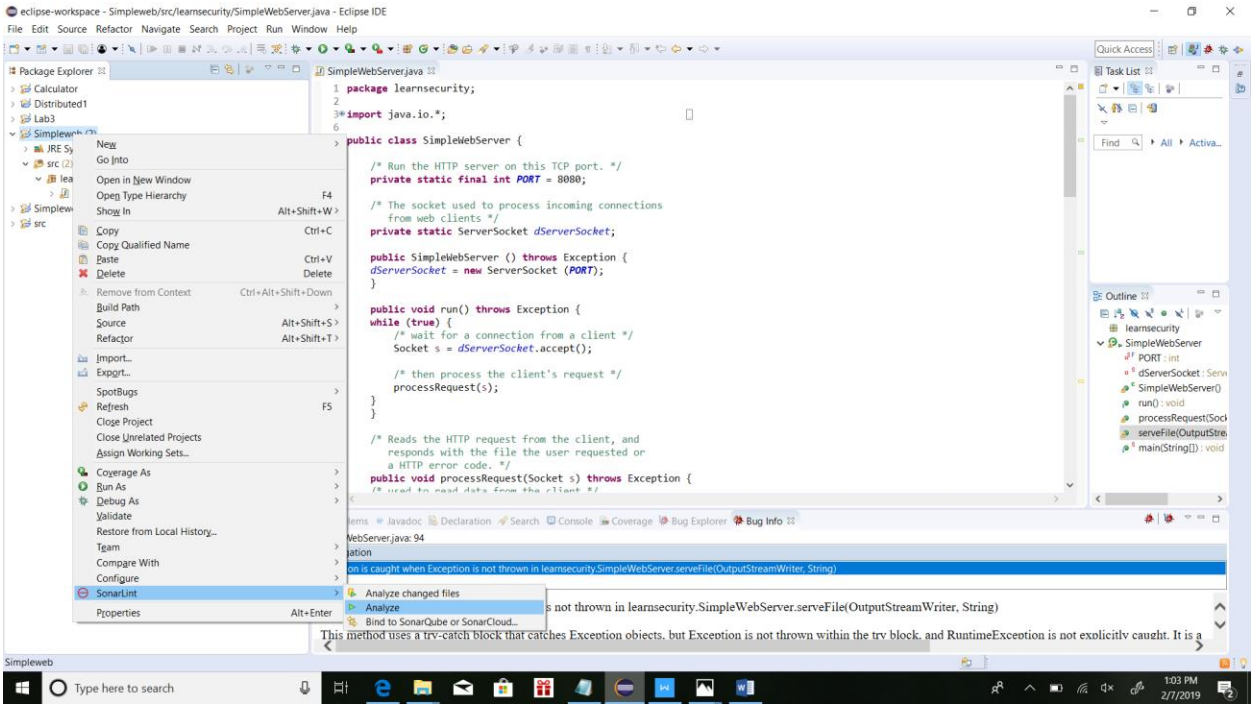
Code Smell:

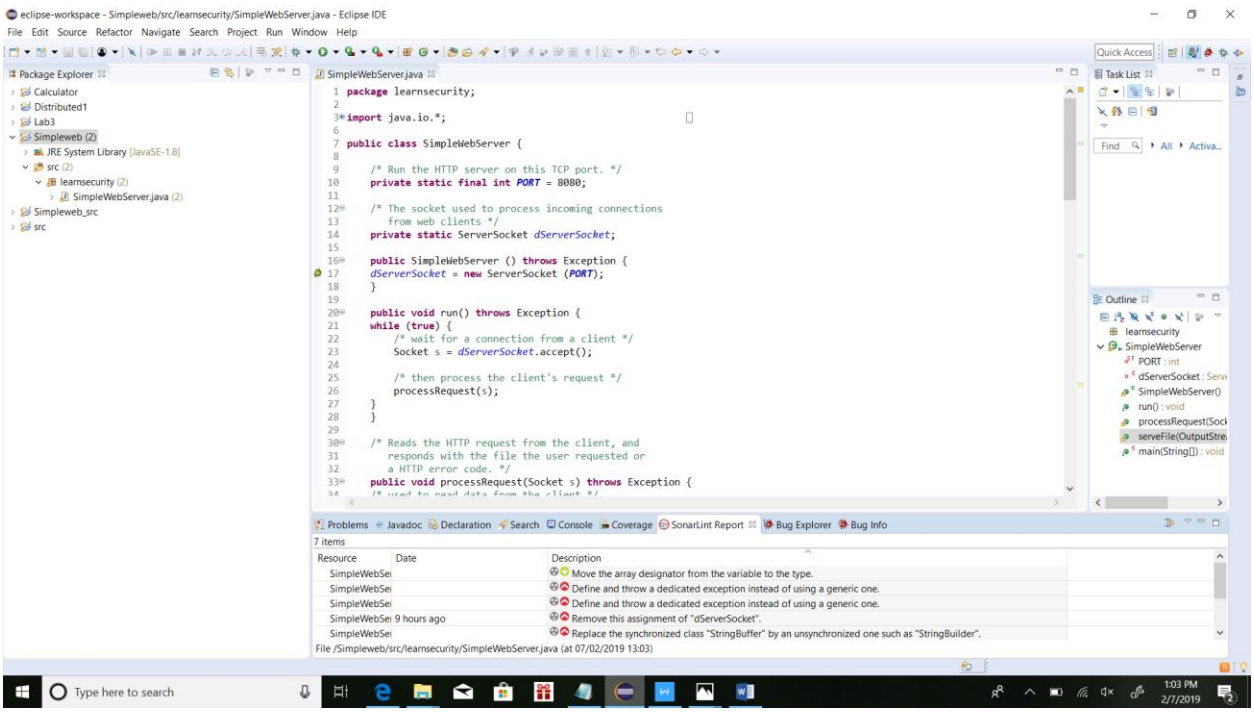
1)Number of major Code Smells: 4

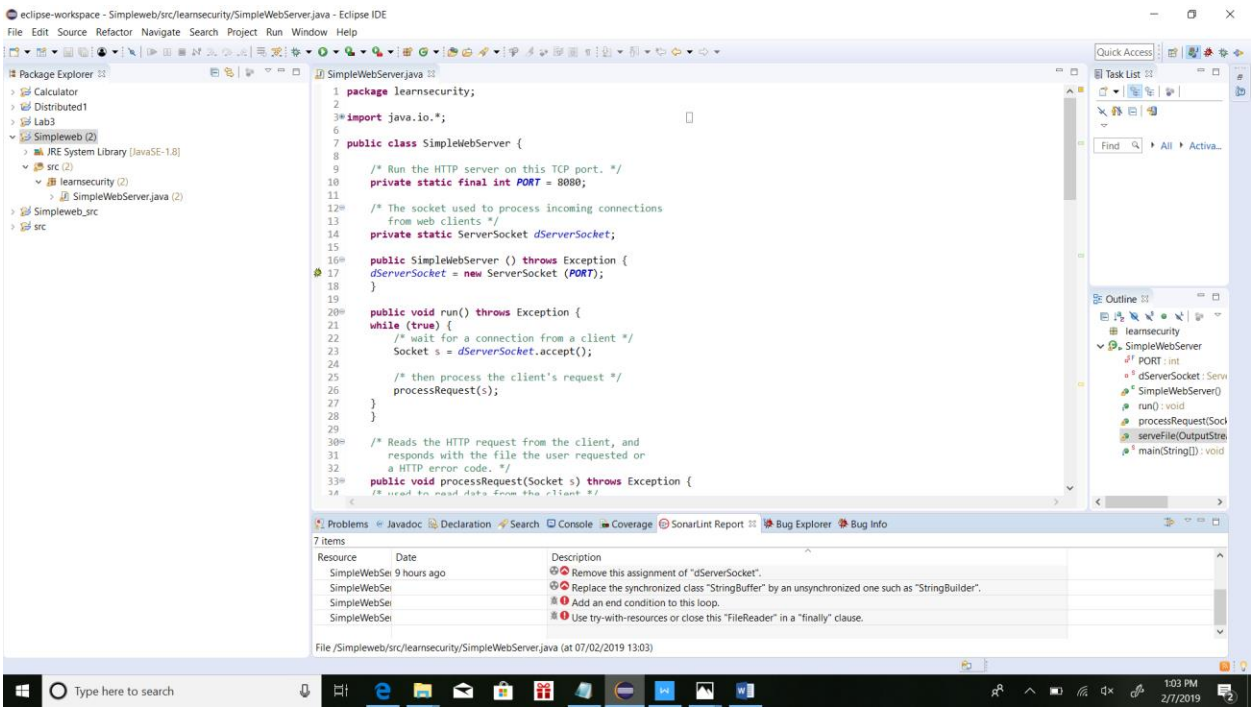
2) Number of minor Code Smells: 1

Bugs(Blocker Issue):2

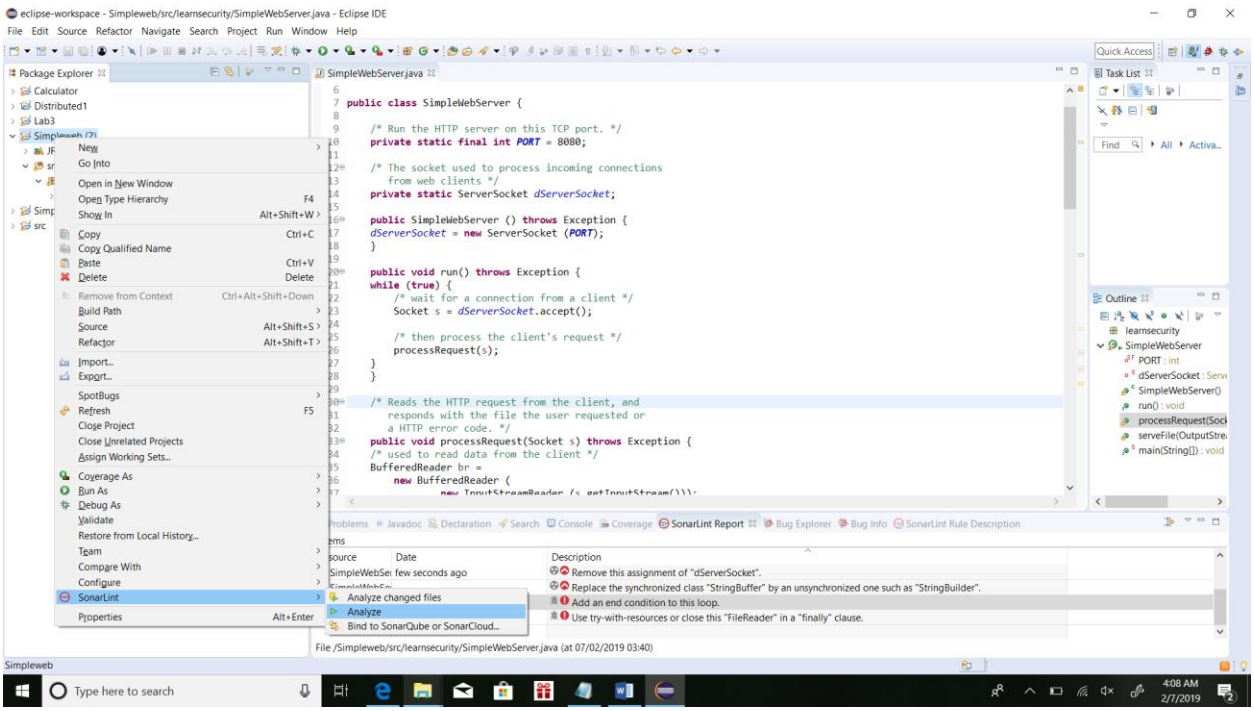
Screenshots for Test 1:

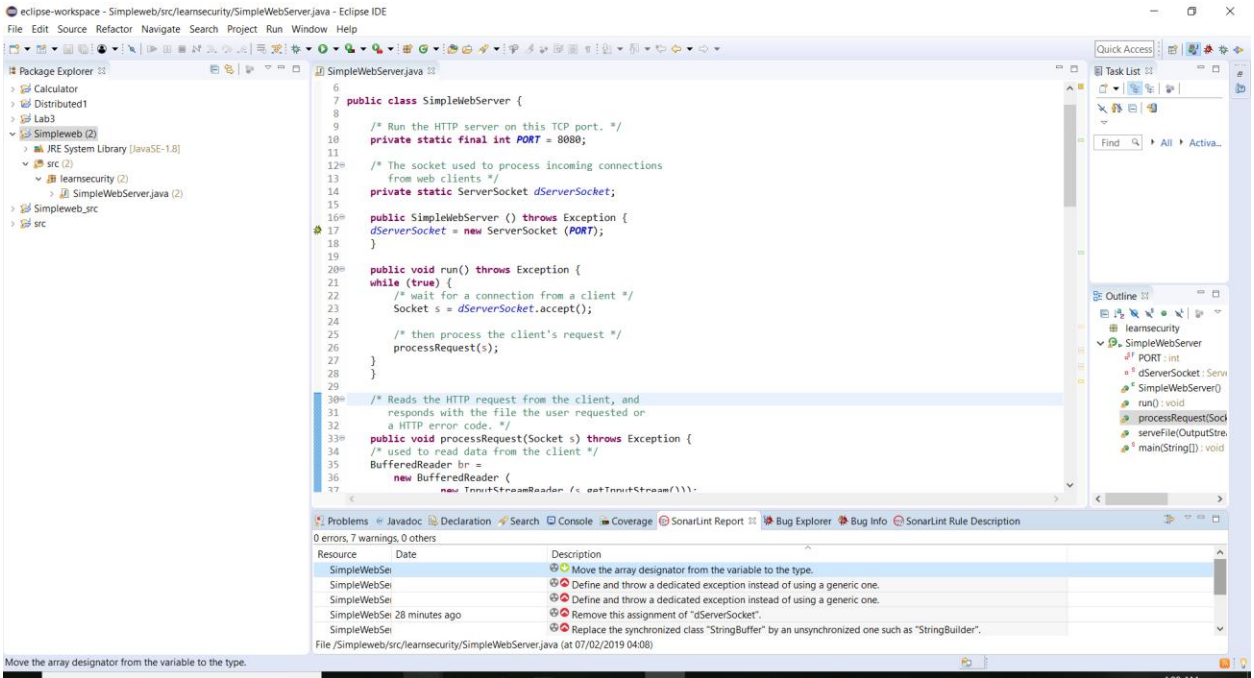

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb (2)
JRE Sy
src (2)
lea
Simpleweb_src
src
New
Go Into
Open in New Window
Open Type Hierarchy F4
Show In Alt+Shift+W
Copy Ctrl+C
Copy Qualified Name
Paste Ctrl+V
Delete Delete
Remove from Context Ctrl+Alt+Shift+Down
Build Path
Source Alt+Shift+S
Refactor Alt+Shift+T
Import...
Export...
SpotBugs
Refresh F5
Close Project
Close Unrelated Projects
Assign Working Sets...
Coverage As
Run As
Debug As
Validate
Restore from Local History...
Team
Compare With
Configure
SonarLint
Properties Alt+Enter
Analyze changed files
Analyze
Bind to SonarQube or SonarCloud...
SimpleWebServer.java
package learnsecurity;
import java.io.*;
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
Outline
learnsecurity
SimpleWebServer
PORT : int
dServerSocket : Serv
SimpleWebServer()
run() : void
processRequest(Sock
serveFile(OutputStre
main(String[]) : void
Task List
Find All Activa...
Quick Access
Problems Javadoc Declaration Search Console Coverage Bug Explorer Bug Info
WebServer.java: 94
ation
on is caught when Exception is not thrown in learnsecurity.SimpleWebServer.serveFile(OutputStreamWriter, String)
s not thrown in learnsecurity.SimpleWebServer.serveFile(OutputStreamWriter, String)
This method uses a try-catch block that catches Exception objects, but Exception is not thrown within the try block, and RuntimeException is not explicitly caught. It is a
Simpleweb
Type here to search
1:03 PM
2/7/2019

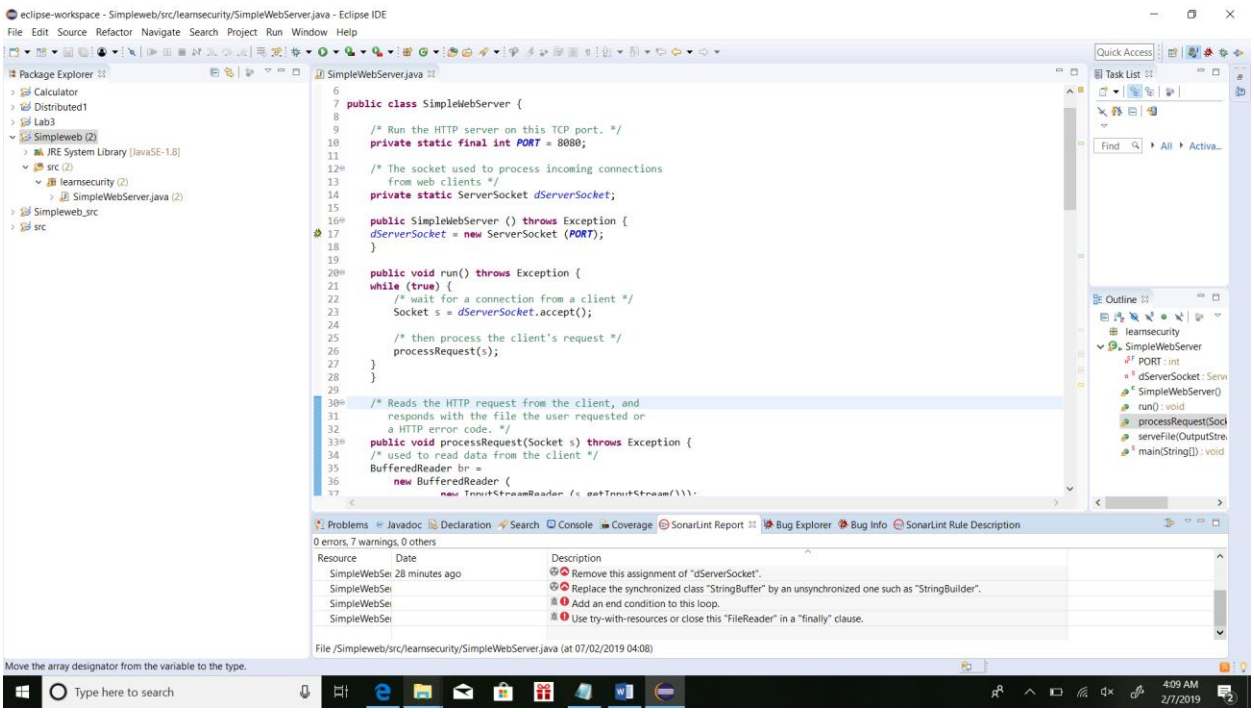

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb (2)
JRE System Library [JavaSE-1.8]
src (2)
learnsecurity (2)
SimpleWebServer.java (2)
Simpleweb_src
src
SimpleWebServer.java
package learnsecurity;
import java.io.*;
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
Outline
learnsecurity
SimpleWebServer
PORT : int
dServerSocket : Serv
SimpleWebServer()
run() : void
processRequest(Sock
serveFile(OutputStre
main(String[]) : void
Task List
Find All Activa...
Quick Access
Problems Javadoc Declaration Search Console Coverage SonarLint Report Bug Explorer Bug Info
7 items
Resource Date Description
SimpleWebSe Move the array designator from the variable to the type.
SimpleWebSe Define and throw a dedicated exception instead of using a generic one.
SimpleWebSe Define and throw a dedicated exception instead of using a generic one.
SimpleWebSe 9 hours ago Remove this assignment of "dServerSocket".
SimpleWebSe Replace the synchronized class "StringBuffer" by an unsynchronized one such as "StringBuilder".
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 13:03)
Type here to search
1:03 PM
2/7/2019



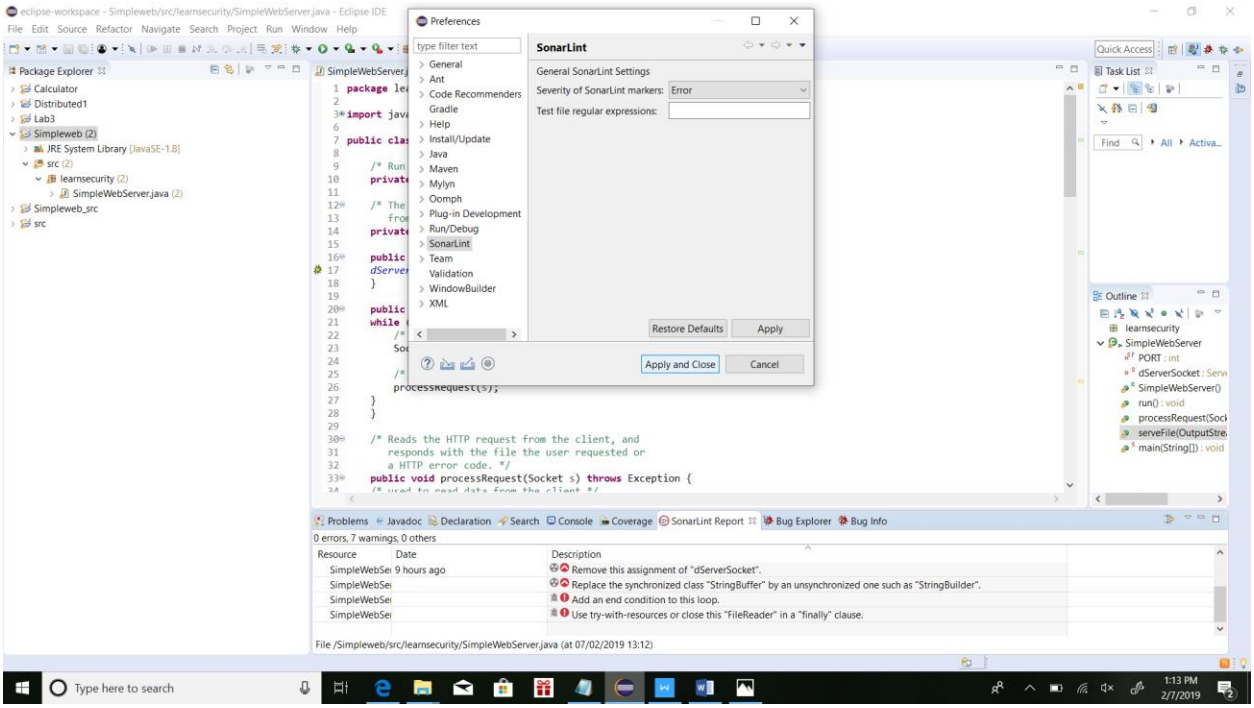
Screenshots for Test 2:

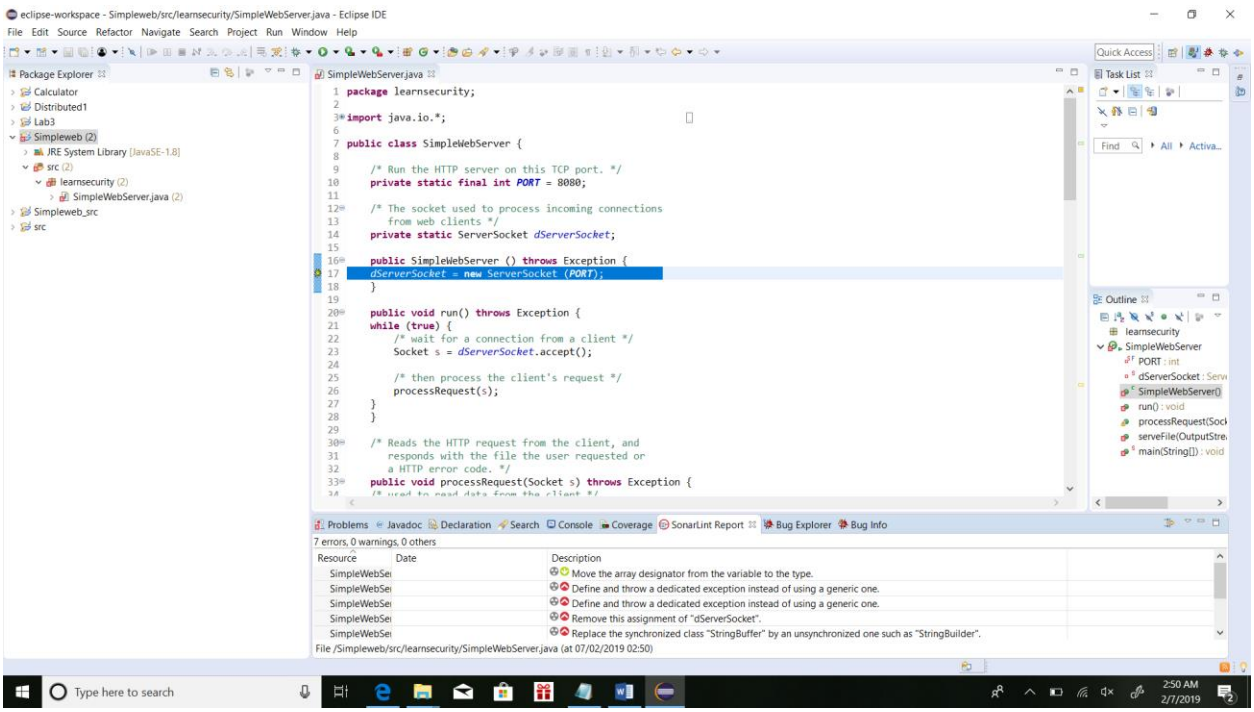




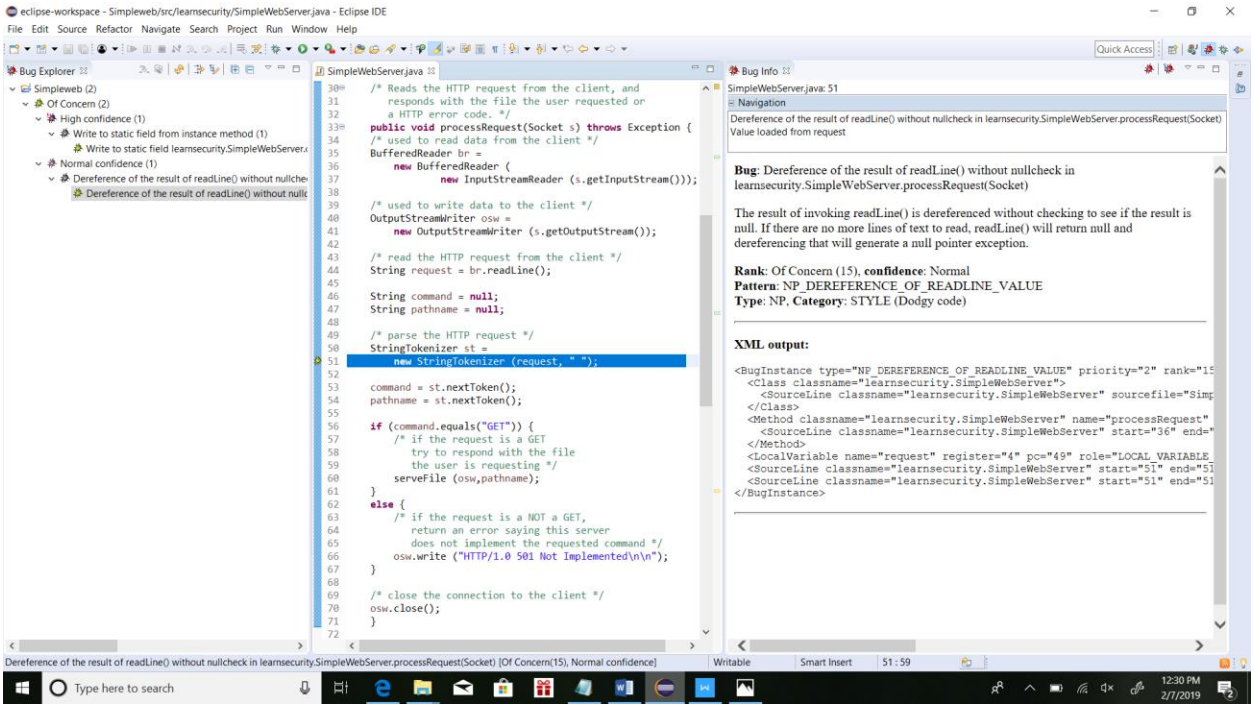


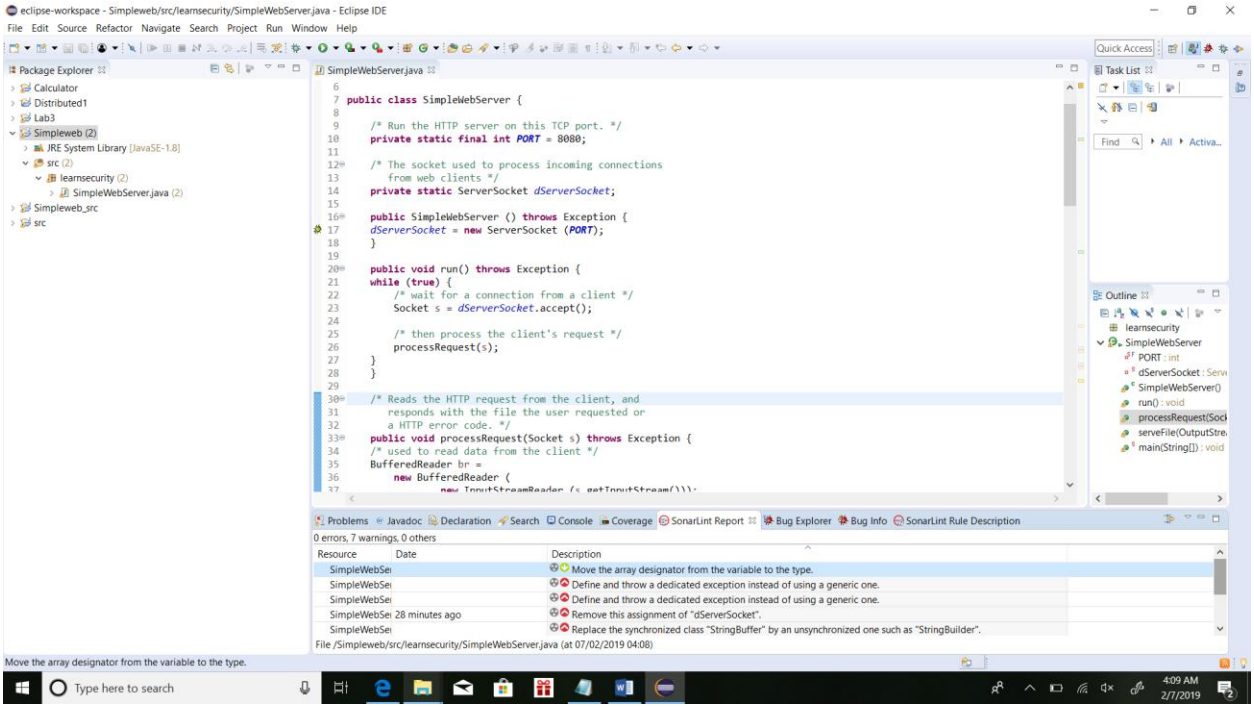
Screenshots for Test 3:

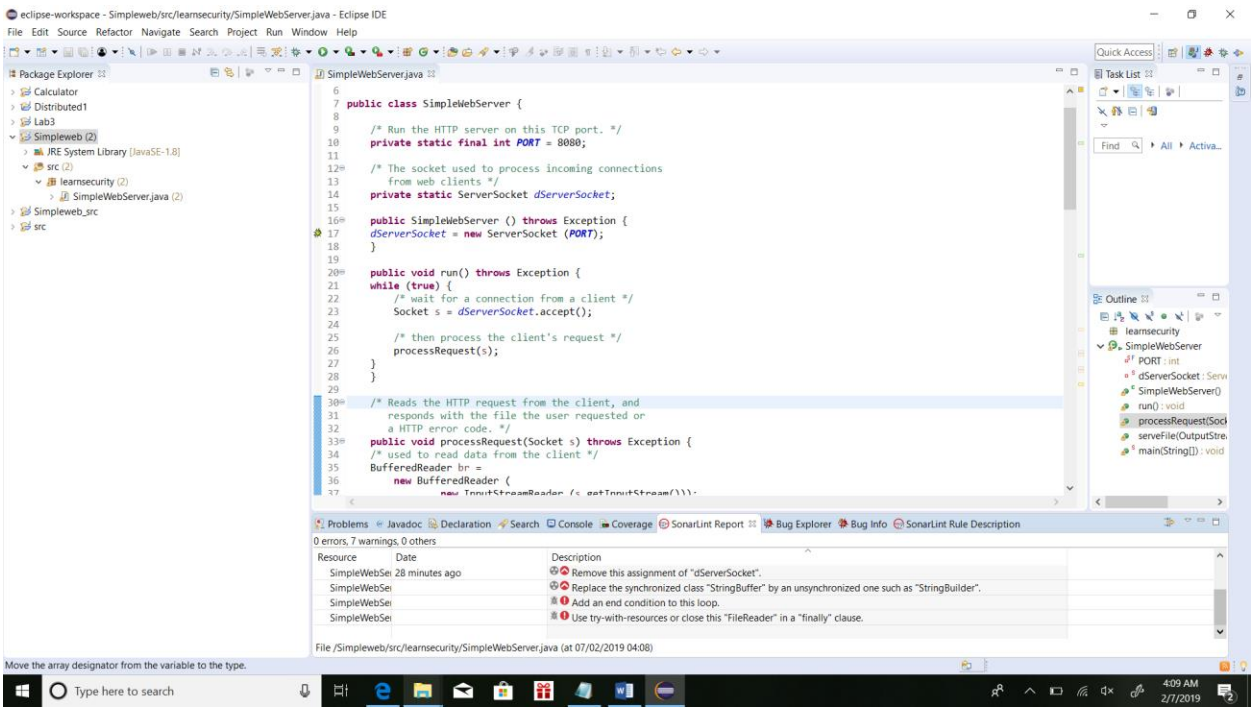




Show an example (if one exists) of a finding that is reported by one tool and not others:

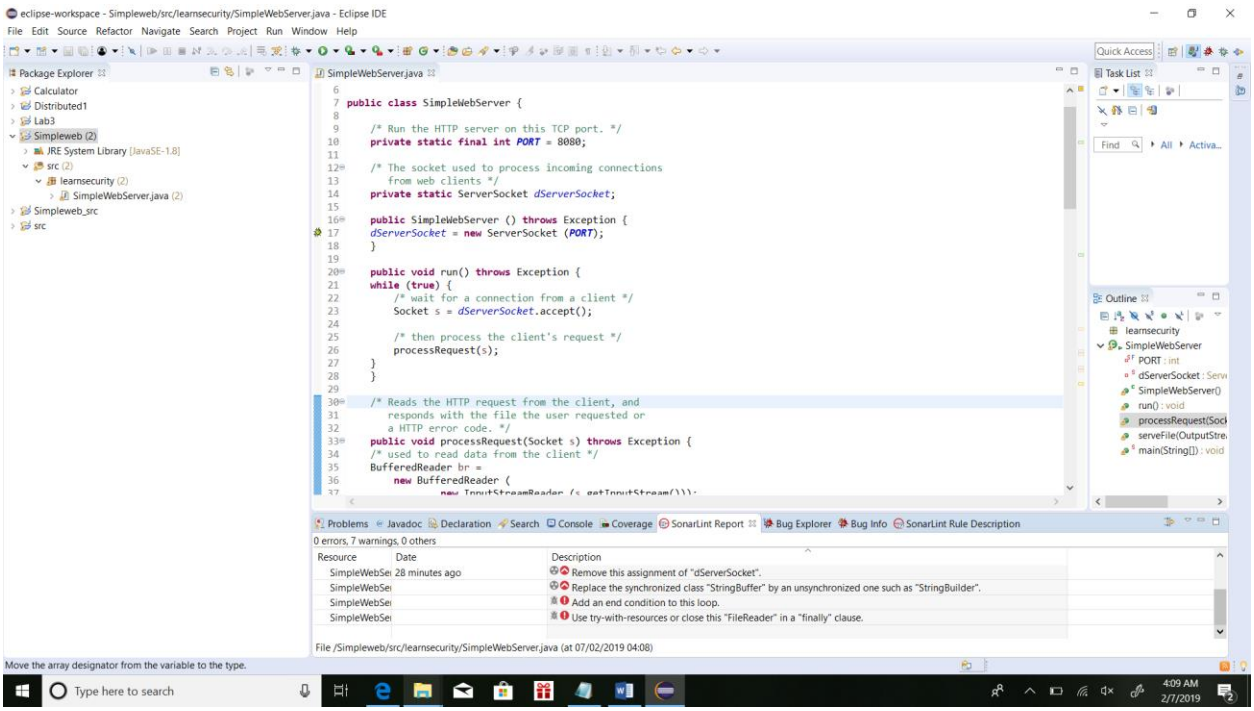

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Bug Explorer
Simpleweb (2)
Of Concern (2)
High confidence (1)
Write to static field from instance method (1)
Write to static field learnsecurity.SimpleWebServer.
Normal confidence (1)
Dereference of the result of readLine() without nullche
Dereference of the result of readLine() without nullc
SimpleWebServer.java
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
/* used to read data from the client */
BufferedReader br =
new BufferedReader (
new InputStreamReader (s.getInputStream()));
/* used to write data to the client */
OutputStreamWriter osw =
new OutputStreamWriter (s.getOutputStream());
/* read the HTTP request from the client */
String request = br.readLine();
String command = null;
String pathname = null;
/* parse the HTTP request */
StringTokenizer st =
new StringTokenizer (request, " ");
command = st.nextToken();
pathname = st.nextToken();
if (command.equals("GET")) {
/* if the request is a GET
try to respond with the file
the user is requesting */
serveFile (osw,pathname);
}
else {
/* if the request is a NOT a GET,
return an error saying this server
does not implement the requested command */
osw.write ("HTTP/1.0 501 Not Implemented\n\n");
}
/* close the connection to the client */
osw.close();
}
Bug Info
SimpleWebServer.java: 51
Navigation
Dereference of the result of readLine() without nullcheck in learnsecurity.SimpleWebServer.processRequest(Socket)
Value loaded from request
Bug: Dereference of the result of readLine() without nullcheck in learnsecurity.SimpleWebServer.processRequest(Socket)
The result of invoking readLine() is dereferenced without checking to see if the result is null. If there are no more lines of text to read, readLine() will return null and dereferencing that will generate a null pointer exception.
Rank: Of Concern (15), confidence: Normal
Pattern: NP_DEREFERENCE_OF_READLINE_VALUE
Type: NP, Category: STYLE (Dodgy code)
XML output:
<BugInstance type="NP_DEREFERENCE_OF_READLINE_VALUE" priority="2" rank="15
<Class classname="learnsecurity.SimpleWebServer">
<SourceLine classname="learnsecurity.SimpleWebServer" sourcefile="Simp
</Class>
<Method classname="learnsecurity.SimpleWebServer" name="processRequest"
<SourceLine classname="learnsecurity.SimpleWebServer" start="36" end="
</Method>
<LocalVariable name="request" register="4" pc="49" role="LOCAL_VARIABLE_
<SourceLine classname="learnsecurity.SimpleWebServer" start="51" end="51
<SourceLine classname="learnsecurity.SimpleWebServer" start="51" end="51
</BugInstance>
Dereference of the result of readLine() without nullcheck in learnsecurity.SimpleWebServer.processRequest(Socket) [Of Concern(15), Normal confidence]
Writable
Smart Insert
51 : 59
Type here to search
12:30 PM
2/7/2019

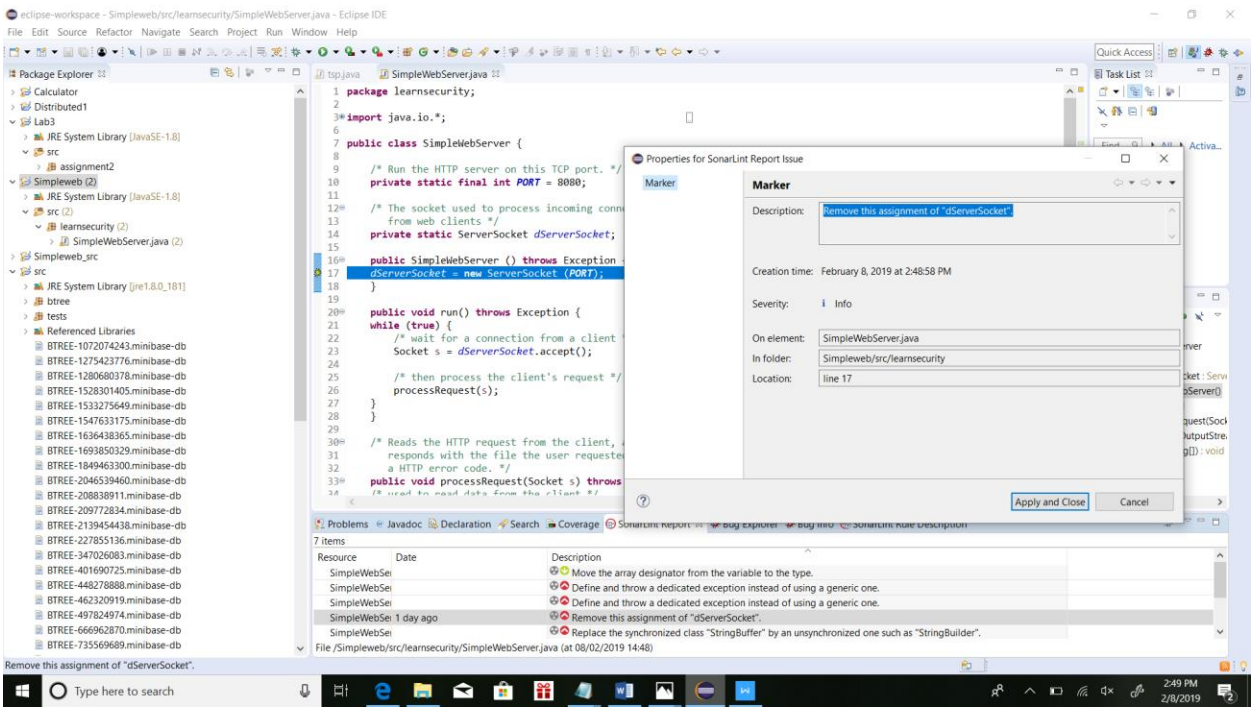

eclipse-workspace - Simpleweb/src/learnsecurity/SimpleWebServer.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Calculator
Distributed1
Lab3
Simpleweb (2)
JRE System Library [JavaSE-1.8]
src (2)
learnsecurity (2)
SimpleWebServer.java (2)
Simpleweb_src
src
SimpleWebServer.java
public class SimpleWebServer {
/* Run the HTTP server on this TCP port. */
private static final int PORT = 8080;
/* The socket used to process incoming connections
from web clients */
private static ServerSocket dServerSocket;
public SimpleWebServer () throws Exception {
dServerSocket = new ServerSocket (PORT);
}
public void run() throws Exception {
while (true) {
/* wait for a connection from a client */
Socket s = dServerSocket.accept();
/* then process the client's request */
processRequest(s);
}
}
/* Reads the HTTP request from the client, and
responds with the file the user requested or
a HTTP error code. */
public void processRequest(Socket s) throws Exception {
/* used to read data from the client */
BufferedReader br =
new BufferedReader (
Task List
Outline
learnsecurity
SimpleWebServer
PORT : int
dServerSocket : Serv
SimpleWebServer()
run() : void
processRequest(Sock
serveFile(OutputStre
main(String[]) : void
Problems
Javadoc
Declaration
Search
Console
Coverage
SonarLint Report
Bug Explorer
Bug Info
SonarLint Rule Description
0 errors, 7 warnings, 0 others
Resource
Date
Description
SimpleWebSe
Move the array designator from the variable to the type.
SimpleWebSe
Define and throw a dedicated exception instead of using a generic one.
SimpleWebSe
Define and throw a dedicated exception instead of using a generic one.
SimpleWebSe 28 minutes ago
Remove this assignment of "dServerSocket".
SimpleWebSe
Replace the synchronized class "StringBuffer" by an unsynchronized one such as "StringBuilder".
File /Simpleweb/src/learnsecurity/SimpleWebServer.java (at 07/02/2019 04:08)
Move the array designator from the variable to the type.
Type here to search
4:09 AM
2/7/2019



As seen from the above screenshots the finding on line 51 by SpotBugs is not reported by SonarLint.

Show an example (if one exists) of a finding reported by multiple tools:





As seen from the above screenshot, both Spotbugs and SonarLint show an issue on line 17.

Bug in SpotBugs: Write to static field learnsecurity.SimpleWebServer.dServerSocket from instance method new learnsecurity.SimpleWebServer()

For SonarLint: `SimpleWebServer.java 8 hours ago Remove this assignment of "dServerSocket".`